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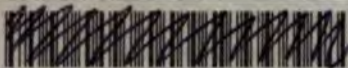
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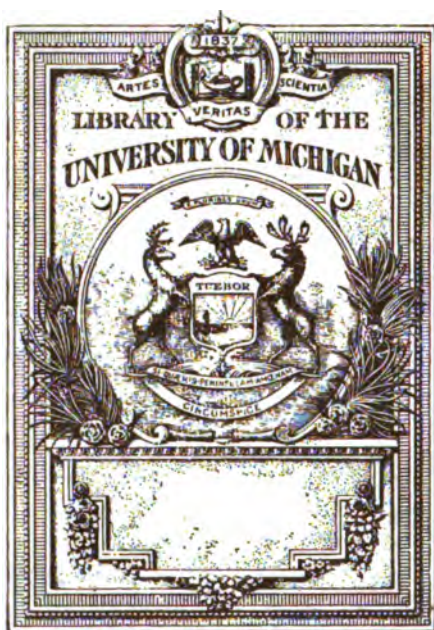
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A JOURNAL PUBLISHED FOUR TIMES A YEAR AND DEVOTED
TO THE STUDY AND THE PROGRESS OF
DIAGNOSIS AND PROGNOSIS

(Founded by Heinrich Stern, M.D., LL.D., F.A.C.P.)

VOLUME XIV

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BOOK REVIEWS

Interesting Neighbors. By Oliver P. Jenkins—P. Blakiston's Son & Co., Philadelphia, Pennsylvania.

This little book may well be recommended to all parents who are in search of something that will engage the attention of their growing up children. There is a good list of subjects from which to choose a special item. If the children take an interest for instance in butterflies and moths and are taught how to find and catch them, how to set and classify them, how to hunt caterpillars, raise them and watch them turn in a chrysalis or cocoon and then find later on the fully developed butterfly or moth ready for the poison bottle, their time will be fully occupied with the study of the hidden mysteries of nature. It will keep them out of mischief and sharpen their mental faculties.

Opiate Addiction, Its Handling and Treatment. By Edward Huntington Williams, M.D.—The Macmillan Company, New York.

The book is practically speaking a plea for the establishment of special sanatoria in which the drug addicts are to be treated. The author looks upon this failing as a morbid constitutional condition. This makes opiate addiction a disease and thus removes the criminal character from it, in a parallel line for instance with psychopathic anomalies. The penal code should not apply, but appropriate treatment for the correction of the habit should be given under the best ideal circumstances.

City Homes on Country Lanes, Philosophy and Practice of the Home-In-A-Garden. By William E. Smythe—The Macmillan Company, New York.

The author idealizes. The book is full of alluring and charming episodes which will leave a fruitful impression on the minds of many readers. As a result, no doubt, numerous attempts will be made to put into practice many of the suggestions coming from the author. Some will succeed, others, perhaps the majority, will meet

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Special Articles

**OBSERVATIONS ON YELLOW FEVER, IN A RECENT
VISIT TO AFRICA**

By DR. JUAN GUITERAS

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of Havana, Member of the Yellow Fever Commission of
the International Health Board

LECTURE DELIVERED BEFORE THE ACADEMY OF MEDICINE OF HAVANA
ON FEBRUARY 14, 1921

The Lecturer, after describing the organization of the Commission under the direction of Gral. Gorgas, and the preparatory steps with the kindly assistance of medical and Government authorities in Europe, said:

The time allotted to this Commission has not been sufficient to investigate the situation thoroughly or come to definite conclusions. The distance to be covered, and the time consumed in travelling interfered with the consideration of the difficult problems relating to the aspects of yellow fever in large negro populations.

I had thought that the best method would be to settle in one of the two great commercial centres of the coast, Dakar or Lagos, which present the following advantages: facility of communication with other regions, the existence of a large white, more susceptible population—a better reagent for the yellow fever,—the existence of laboratories, and a mobile population gathered from many places. An outbreak of the disease was more likely to occur here than elsewhere. The French colony offering, furthermore, the

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advantage of presenting, in the old settlements of Goree, Rufisque and St. Louis, a considerable focus of white and half-breed population which is again a better touchstone than the negro.

Some such expectant procedure was instituted at Lagos, the time being profitably filled with such studies of the *Leptospiras* as opportunity offered; looking for the icterohaemorrhagiae in the native rats; reactions of agglutination, Pfeiffer, and immunization with individuals who were supposed to have had yellow fever in recent outbreaks, or with those presenting suspicious symptoms; the transmission of the icterodes infection from guinea pig to guinea pig by the calopus mosquito, and the study of the salivary glands in such mosquitos. The results obtained were generally negative.

I devoted more special attention to an endeavor to apply my statistical methods for the detection of the presence of yellow fever in a community. This method is founded on the discovery of the existence of a marked rise in the mortality of white children in the presence of that disease, though this increase may not, and generally does not appear in the death records under the diagnosis of yellow fever. I have studied elsewhere under what headings this surplus mortality is likely to be found. This method constitutes a most positive evidence in mixed populations, where the death records include age, racial differences and diagnoses given, with more or less accuracy by physicians.

The fact that my studies on this subject always brought evidence that the increase of mortality did not affect the black children, gave me little encouragement to hope for any success with the method in communities such as Lagos where practically all the children are black.

The mortuary records of Lagos are quite imperfect. The diagnosis is generally made from the reports of friends or the family.

I have noted all the deaths occurring in 17 years chosen from several periods between 1868 and 1920, endeavoring to contrast yellow fever with non-yellow fever years. I have prepared graphic curves representing the deaths by months, which are included in my report to the Rockefeller Foundation. I shall reproduce here the following table of deaths per year with remarks concerning yellow fever.

Years	Death rate per 1,000 of population	% of deaths of children under 5 years of age to total of deaths	Number of deaths of whites	REMARKS
1868	60.6	51.4	3	1 death from yellow fever. ¹
1869	52.5	48.2	10	No yellow fever reported.
1870	52.7	49.4	3	" " " "
1871	43.6	49.0	6	" " " "
1880	30.2	35.5	15	" " " "
1891	46.0	38.5	8	" " " "
1892	41.2	36.9	7	" " " "
1893	38.5	34.2	16	" " " "
1894	40.2	39.7	23	Believed to have existed. ²
1895	46.1	40.3	13	" " " "
1896	43.4	42.4	23	" " " "
1901	41.4	48.7	12	No yellow fever reported.
1910	27.4	51.4	15	Yellow fever reported.
1912	23.1	51.3	11	No yellow fever reported.
1913	24.6	48.8	17	First outbreak officially reported and apparently the largest. ³
1919	23.2	46.3	13	One case in a native.
1920	24.8	44.2	9	One case in a native. ⁴

¹ There is one death also reported in 1867, but the record of the year is incomplete.

² Sir R. Boyce expresses the opinion that yellow fever was present in these years, and, judging from the causes of death given in some of the cases in the Registrar's book, and from the increase in the number of deaths of whites, I believe that he was right.

³ In the history of this epidemic it is stated that this is the first time that yellow fever had been officially recognized in Lagos, yet, as may be seen in Note 1, I discovered in the Registrar records a death from yellow fever in 1867 and 1868, respectively. The number of cases reported in 1913 was thirty-eight.

⁴ The study of the history of this case, which occurred before our arrival in Lagos, convinces me that it was not yellow fever.

In the selection of the years for the above table I have tried to contrast yellow fever years with no fever years. From the notes to the table it will be seen that it is difficult to determine this in Lagos. I have introduced some census years in order to give some accuracy to the calculation of the death rates.

The table I have shown you gives no indication that the death rate of blacks under 5 years of age is affected by the presence of the yellow fever in Lagos. In studying, however, the data of the mortality per month I find interesting information with respect to the seasonal influence upon the death rate of children. Most frequently there is a rise in the middle of the year, the summer season in the northern hemisphere. But not rarely there is a

similar or even greater elevation in January and December. Even when the latter occurs there is always some elevation in the summer. Now, June, July, and August constitute the wet and cool season in Lagos, December and January represent the hot dry season.

No case of yellow fever was seen by us in Lagos. One false alarm brought us to Lakoja at the confluence of the Benue with the Niger. The Commission then divided. Drs. Tyler and Horn visited the Gold Coast and Sierra Leone. Dr. Stokes remained at Lagos with the main laboratory, and Dr. Noble and myself visited Dahomey, the French and Belgian Congo, and Senegal.

No visible yellow fever anywhere. Strange to say; the three things that we thought most likely to find in Africa, yellow fever, intense heat, and troublesome insects, were looked for in vain. The sky was generally overcast, the weather cool, damp and drizzly, or tempered by delightful sea breezes. No mortiferous solar rays were met with, though we saw plenty of black babies with shaven heads carried on their mothers' backs, exposed to the sun, and plenty of whites faithfully carrying heavy and uncomfortable white helmets on their heads.

Everywhere we met the most cordial welcome and the liveliest interest in our undertaking. The Governors of Nigeria, of Dahomey and of French West Africa provided us with most comfortable quarters. The Director of Health Services of Negeria, Dr. Rice, the Director of the Laboratory at Yaba, Dr. Connal, and Mrs. Connal, the entomologist of the Station, the amiable French society at Porto Novo and Cotonu, Dr. Noc in charge of the laboratory at Dakar, and many others, all were most helpful and hospitable.

In all places the historical records revealed the previous existence of outbreaks that may be called quite limited if we compare them with the sweeping and rapid outspread of yellow fever in the epidemics of North America. A difference that is evidently due to the absence of the white element in Africa.

The visit to Matadi on the Congo river leaves the indelible impression in the memory of that majestic current, and the uninhabited shores desolated by the sleeping sickness. This disease we saw at closer quarters in the hospital at Dakar.

The demographic data at Dakar are still more incomplete than those of Lagos. The diagnoses are not given in the register of deaths. You have to look into the hospital records to get an idea of the diseases prevailing at different times, and to examine the valuable reports of medical officers. This notwithstanding, the statistics show remarkable coincidences of rises in the mortality of children and the presence of yellow fever. Here the epidemics are more widespread, and the endemic character is more pronounced, on account of the existence of numerous creole families, both white and colored, in the old settlements of Goree, Rufisque and St. Louis. No wonder that Senegal was once the school of yellow fever where the Dutroleaus and the Berenger Ferauds learned to know the disease.

The last explosion of yellow fever occurred in Dakar in 1910, the cases continuing until 1912.

General Resumé of the Yellow Fever Situation in the West Coast of Africa

It may appear paradoxical, but it is a fact, that the presence of groups of population who enjoy a partial immunity to yellow fever (Blacks) or children of any race who are apt to show comparatively mild manifestations of the disease, in the midst of other larger groups that have been immunised completely by a previous attack, —the existence, I say, of such aggregates of population may work in quite opposite directions, that is either for maintenance, or for the extinction of endemicity.

Scattered small centres of population, isolated haciendas with purely local intercommunication, without access to large routes of communication, such as the regions about Merida in Yucatan, and Coro in Venezuela, will work for maintenance. Comparatively larger but stagnant groups of population will work for spontaneous extinction, as in Porto Rico and the smaller cities of Cuba, such as Matanzas, Camagüey, Santa Clara. In the first instance immunisation works piecemeal; the small local foci, now in one hacienda or small village, now in others, will be entirely unobtrusive, and will pass unrecognised. The number of non-immunes, children, is small, and they are surrounded by an immune wall of adults. The non-immune adult is likely to be a passer-by who will carry the

infection to a distant ranch or village. The endemicity here presents a distinctly smouldering character. In the second instance a severe epidemic will reduce, within a very short time, one season perhaps, the number of non-immunes to a level that makes propagation improbable. In either case, however, it must be admitted that accidental circumstances may alter the situation.

Now, all this is very similar to what happens in connection with other endemo-epidemic diseases, such as diphtheria, measles, whooping cough, probably also smallpox, before the days of vaccination. I have likened the movements of an endemic area (which in the case of yellow fever must be within the *stegomyia* zone) to those of an enormous amoeba moving over the land, advancing and withdrawing and extending pseudopodes which at times may be represented by the transportation of a single case or of an infected *stegomyia* with successful or unsuccessful growth by budding, according to accidental circumstances.

Years ago it was thought necessary to invoke the aid of more or less complicated and persistent fomites in order to explain the continuance of these diseases, and the starting of unaccountable cases. Such explanation has been now abandoned and the mild unrecognised case is accepted as the carrier and propagator, or the true carrier in some diseases such as typhoid, diphtheria, and malaria. There are no true carriers in yellow fever.

It has not been found necessary in these instances to invoke the assistance of a reservoir of the infection in some other species of animal. Nor should it be necessary in connection with the yellow fever, in which disease the almost theatrically prompt eradication of the disease in the great centres of endemicity such as Havana, Panama, and Rio Janeiro, should exclude all assumption of the existence of such a reservoir.

Conditions similar to those that I have described above exist in the West Coast of Africa, and if we add the persistence of tropical temperatures, the widespread distribution of the *Calopus* mosquito, and the consideration of the historic data at our disposal, we may assert that yellow fever may be endemic anywhere along that coast, and its fluvial systems up to a certain altitude. But the mistake has been made to suppose that this implies that the disease must be endemic all the time in all the places.

The conception of endemicity originated at the time that yellow fever was supposed to be a climatic or telluric disease. At the present time endemicity can only mean that the disease may continue to prevail at one place from one season to another, without the necessity of fresh importation. Now, this continuance is subject to accidents, and under their influence, may be prolonged more or less in the manner I have described above. Permanent endemicity is not a character that belongs in the natural history of yellow fever. The continued prevalence of the disease in Havana, Panama, or Vera Cruz was due to the circumstance of a continuous inflow of large groups of non-immune people. As I have stated above, in smaller communities where this accident of great and frequent immigration in consistent groups that hold together (the soldier was the type) is not present, the disease tends to disappear spontaneously.

Boyce was, therefore, right in supporting the doctrine established in America by Blair, Chaillé, and Guiteras, as to the prevalence of yellow fever among native children and races and the application of this doctrine to the problems of endemicity. In so doing he, and the British West Africa Yellow Fever Commission, helped to clear up the understanding of the African situation with respect to that disease. But these views are carried too far when it is pretended that there must be permanent extensive areas of endemicity along the coast, or that the whole region is one such endemic area.

As a matter of fact the experience of the present expedition, would rather tend to prove that the hold of yellow fever upon this coast is becoming extremely precarious. It is even possible that the infection may have disappeared altogether. This region never presented any intense and permanent distributing centre for yellow fever, such as Havana, Panama, Vera Cruz, Rio Janeiro, and even New Orleans were in former times, on the opposite shores of the Atlantic.

The disappearance of those foci has influenced very decidedly the distribution of yellow fever on the American continent. This favorable influence may be admitted to have reflected also upon the coast of Africa which was originally infected from the American Mediterranean.

If we add to this the progressive disappearance of the sailing, *stegomyia* breeding vessels from the seas; if we take into account the relative immunity of the negro to yellow fever; if we remember that during the recent war important expeditionary forces with considerable contingents of white officers and troops were sent into Togoland and the Cameroons without a single occurrence of yellow fever, and if we recognise that a more or less continuous and successful effort is being made to maintain the Finlay-Gorgas methods of *stegomyia* control in the seaport towns of the African coast, we should be prepared to look upon the problem of yellow fever in Africa from the viewpoint of a possible or even probable total extinction of the disease on this continent.

If the yellow fever infection has been present this year anywhere in the vast zone over which we made a preliminary survey, it is likely to have been in the shape of small foci, fenced in and isolated by living screens of immune people.

Let us look more closely into the question of negro immunity. Beside the fact that it exists to a very marked degree we know nothing. Its existence has been denied. This is a reaction from the too absolute asseverations made by earlier observers. It was not uncommon for these to deny a pure blooded negro could have yellow fever. But soon the exceptions began to be noted and even groups of negroes especially exposed were shown to have been infected.

But those of us who have seen the great epidemics in the south of the United States, when large communities of mixed population were invaded after many years of immunity, know perfectly well that the negro went practically scot-free when the whites were perishing in large numbers. And we noted with surprise the exceptions, even fatal exceptions, to the general rule.

My own records of statistics showing the increased mortality of white children in the midst of epidemics of yellow fever have their value precisely in the contrast with the unaltered curve of the mortality of the colored children.

But how far does the negro go scot-free? Does he possess a natural racial resistance to the infection? Do the majority of them not have the disease at all, or do they either in childhood or in adult life have such mild manifestations of the disease that

it is absolutely unrecognizable, but is followed, as in the whites, by a very persistent acquired immunity? I do not think that it is possible to answer these questions. It was anticipated that the present expedition might have had the opportunity of studying the reaction of a purely black community to the yellow fever virus, and that with the aid of Dr. Noguchi's discovery full light would have been thrown upon these obscure problems.

I should add here that local outbreaks, designated as yellow fever, affecting black centres of population, should be looked upon with some suspicion. Since I witnessed the rather extensive epidemic of a febrile form of jaundice affecting exclusively the colored people in Barbados, which caused the death of several of them, but never propagated itself to the whites nor to the neighboring islands; since I have heard of a somewhat similar outbreak in Dakar, in which a few mild cases occurred among the whites, but all the severe and some fatal cases were negroes. I believe that such local outbreaks have been too readily accepted as manifestations of the yellow fever.

With respect to the military expeditions on the West Coast during the war I am informed that over 50,000 admissions, both white and colored, were reported in the several hospitals without a single suspicion of yellow fever having been aroused.

One word finally as to the campaign for the control of the stegomyia. In none of the places we have visited did mosquitos of any kind cause us any inconvenience, though very frequently the wire screening had considerably deteriorated, it having been found impossible to replace it during the war. One night on the trip to Lakoja our sleeping car was invaded by *Anophalides*. But in our residences a *Calopus* mosquito has been quite a rarity. Of course we always resided in the European quarters.

I have mentioned several times the recent discovery of the Japanese investigator Dr. Noguchi, and I feel that I should not end this discourse without calling attention to the doubts that arise in my mind, and cause me to hesitate before accepting the *Leptospira icteroides* as the agent that causes yellow fever.

These doubts are pointed out recognizing at the same time the weight of Noguchi's authority, and of his arguments based on the

reactions of immunization which he has so thoroughly worked out. My reasons for doubting may be summarized as follows:

I.—At the time of his first announcement I called attention to the discrepancies that appeared to exist between his statements and our present knowledge of the epidemiology of yellow fever. If the disease was so easily communicable to a series of animals among which are to be found such domesticated species as the dog and the guinea pig, how is it possible to obtain so readily the prompt extinction of the disease by breaking the chain between the mosquito and man? For we should remember that in Havana the yellow fever was extinguished mainly by this method. The other procedure, the reduction of the *stegomyia* population to the required level was developed by Gorgas later, in Panama. And, furthermore, there being a reservoir for the infection so readily at hand, how can we account for the spontaneous extinction of the disease in many places where it has been endemic for a long time?

And how is it that we have never had epizootic manifestations of yellow fever among these animals in the endemic centres and during the great epidemic invasions? Local announcements to the contrary have been so few and unauthorized (they generally include cats and birds) that they have been generally rejected, and may be grouped with similar statements which popular fancy is apt to bring forward in connection with all epidemic diseases.

All this suggests very strongly that the parasite of yellow fever is, like that of malaria, strictly limited in its cycle to the mosquito and man. All the experiments conducted by Dr. Lebreedo in our laboratories show that our guinea pigs are easily susceptible to the Noguchi infection through the inoculation of his cultures.

II.—The *Lestospira icteroides* of Noguchi is easily inoculated through very superficial lesions of the skin. Now, since the demonstration of the calopus transmission of yellow fever by the American Army Commission all fear of autopsies was lost, and many of these were performed without any special care by non-immunes. Fomites, blood and viscera were handled by careless assistants, without ever causing an infection. If the leptospira of Noguchi were the causative agents of yellow fever one might well doubt that the experiments of the American Commission and of Dr. Ross could have so absolutely proven the innocuousness of fomites. The general trend of

Noguchi's results is to show, I think, that the manner of transmission of his *Leptospira* is much more akin to the Inada parasite than to that of yellow fever.

III.—The number of cases in which Noguchi has succeeded in demonstrating the presence of his parasite, either by direct blood examination, or by inoculations into guinea pigs is relatively small. In Guayaquil out of 27 cases of yellow fever only 6 gave positive results. 74 guinea pigs were inoculated from these 6 cases and only 8 became positively infected, though it is true that he found in others of the lot evidences of immunization. Of the cultures prepared from 11 cases of yellow fever only 3 gave positive results.

(Since the delivery of this conference five cases of yellow fever from Vera Cruz were treated at Las Animas Hospital. From all of them inoculations into guinea pigs were made within the first three days of the disease, all with negative results, though Noguchi's technique was employed. Cultures also failed, but this might be attributed to difficulties in the technique. Secondary passages were made from the pigs inoculated with blood, also without results.)

IV.—Noguchi has obtained a considerable number of successes with blood taken after the third day of the disease, and the experiments of the American Commission tend to show that the virus disappears from the peripheral circulation after the third day.

V.—The experiments of Noguchi to demonstrate the transmission of his virus from man to the guinea pig through the mosquito have been few. Out of six attempts, one was successful, one was doubtful. With respect to the positive case he does not specify clearly on what day of the disease the mosquitos were applied to the patient. The latter was admitted to hospital on the third day, but he does not say that the mosquitos were applied on that day.

Out of the numerous attempts made to transmit the disease by mosquitos from pig to pig, very few were successful, and one naturally inquires whether it be not possible that in a medium, the laboratory, likely to have become infected by fomites and excrementitious matter, an accidental infection may not have been possible, given the facility with which the two species or subspecies of *Leptospira* are inoculable. Dr. Lebreto had a bitch infected upon whose puppies he was trying inoculation experiments. He is to report in detail upon this interesting case.

VI.—The anatomical lesions found in the guinea pig infected with *L. icterodes* are quite distinct from those that we find in man in yellow fever. On the other hand they are identical with those found in Weil's disease, and in pigs infected with either of the leptospiras.

The most characteristic lesions in the cadaver of yellow fever are: the hemorrhage into the gastric cavity—the black vomit in the stomach,—which is found in the great majority of the autopsies, and the fatty, boxwood colored liver, which is also found in the great majority of cases. I have never seen these in pigs infected with *L. icteroides*. I have always found the liver of a dark color with shades of brown, ochre or green, and in the mucous membrane of the stomach I have seen punctiform hemorrhages or suffusions. Such are the lesions found in man in Weil's disease, and in guinea pigs inoculated with *L. icterohaemorrhagiae*. I have seen these lately, since we have at last succeeded in finding native rats (about the Havana abattoirs) infested with *L. icterohaemorrhagiae*.

In the histologic lesions of the liver in yellow fever the evidences of fatty degeneration are very prominent, not so in leptospiral infections. The marked degeneration of the striated muscular fiber seen in the Inada infections have not been described in yellow fever; they certainly are not found in the heart muscle.

VIII.—The epidemiologic and clinical differences between yellow fever and Weil's disease are so fundamental that it is difficult, for me at least, to accept that they are produced by such closely allied organisms as are the two species or subspecies of Inada and Noguchi.

The new students of yellow fever never met the evil goddess in the days of her glory. She was like a winged Victory that the influenza alone seemed able to outrun. Within the short space of one summer she could sweep with desolation the Mississippi valley up to St. Louis. She entered all habitations, that of the rich and of the poor, the hygienic and airy home together with the damp and dark. Yellow fever was for two centuries the terror of the white race in the United States. The same may be said of Spain in the earlier years of the last century. In the same manner, always violently and wide spreading did she appear among the white colonists who landed in tropical America.

Contrast this picture with that of Weil's disease: small out-

breaks, limited, vacillating, irregular, so that even to-day the opinions differ as to whether it is a summer or a winter disease; an infection that crawls along damp and unhealthy surroundings, carried as it is by rats that are not themselves widely infested. What a contrast between the laborious experimental endeavors to demonstrate the presence of the *Leptospira icteroides* in the peripheral circulation of man, and the winged and rapid propagation of yellow fever spreading wide through the minute droplets picked up by the calopus mosquito!

VIII.—Clinically the two diseases are quite dissimilar: the period of incubation short in yellow fever, of 7 to 14 days in Weil's disease; of short duration and one single paroxysm yellow fever with a remission in some cases similar to that of many acute febrile infections, a long duration with a recurrent type of fever Weil's disease, as in the relapsing fevers of similar spirochaetal origin; the slowing pulse as an early manifestation of yellow fever with a temperature that may still be rising, a later manifestation that seems to be consequent upon the jaundice in Weil's disease; absence of pain in the liver and muscles in yellow fever, present in the ictero hæmorrhagic infection; liver and spleen normal in yellow fever, both enlarged in Weil's disease; albuminuria and jaundice earlier in yellow fever; in the latter disease the quantity of albumin is greater, in Weil's disease it is more dependent upon the gravity of the symptoms; the jaundice appears later in this disease, but is more intense and rapid in its diffusion over the body, so that you can follow the rising tide of the deep orange color that shows a shade of brick red; the feces either normal or hæmorrhagic in yellow fever, quite frequently acholic in epidemic jaundice, with the urine more intensely pigmental; the diminution in the amount of urea is often a striking symptom in yellow fever beginning early in the course of the disease, this does not appear to be the case in epidemic jaundice; herpes labialis is not a symptom of yellow fever, but is rather frequent in Weil's disease; the black vomit so characteristic of the severe cases of the former disease, is rarely present in the latter; the active and discursive delirium of yellow fever contrasts strikingly with the typhoid muttering or the hebetude of Weil's disease.

IX.—I cannot speak from experience, but I am under the impres-

sion that there is no convincing proof of the efficacy of the vaccine and serum prepared by Dr. Noguchi, at any rate I believe they have come into play at times when active measures for the eradication of the disease were already in progress.

X.—And last, but not least, the hæmatologic picture of the two diseases belong to quite distinct groups, that of Weil's disease conforming with the relapsing fevers, that of yellow fever with the hematologic formula of the filterable viruses. Epidemic jaundice is distinctly an anemiating disease with a progressive fall of the curves of the hæmoglobin and the number of red cells, down to such figures as 42%, and 1,700,000 erythrocytes; the maintenance of these curves at a high level has always been a striking phenomenon in yellow fever. Leukopœnia in this latter disease, hyperleukocytosis in epidemic jaundice. The hyperleukocytosis of Weil's disease is polymorphonuclear, with relative diminution of the large mononuclears, the leukopœnia of yellow fever is accompanied with an absolute, and at times a very striking increase of the large mononuclears.

It may be that the leptospiral infection found in some cases of yellow fever is a secondary infection similar to those that are found in influenza, the actual causative agent remaining as yet unknown. This, however, is but a theoretical suggestion. Let us hope that the genial Japanese investigator may be able to establish on a firm basis his discovery.

"THE BLIND SORROW OF CHINA"

A PEN PICTURE WITH AN APPEAL TO THE CHINESE GOVERNMENT *

By G. MONTAGU HARSTON, M.D. (Lond.), D.O. (Oxon.), Hongkong

/ For many years past it has been my privilege to conduct an eye clinic at the Tung Wah Hospital in Hongkong; it is with intimate knowledge, therefore, that I can bring to the notice of those concerned the appalling amount of suffering leading to blindness among the poorer classes of Chinese. Such insight as I have gained must constitute my apology for the infliction of further suffering on this Conference by detailing a lurid picture of ophthalmological woe, of

* A paper read before the C.M.M.A. Conference, Peking, 1920.

distress which is preventable, of calamity which should be prevented. In no other civilized country will one meet with such ravages of disease, with the possible exception of Egypt, where the Government has for many years past taken adequate measures for the relief of the population. In China such efforts have been entirely confined to medical missionaries, whose work has our utmost admiration and respect but, taken in conjunction with the enormous population of China, such efforts do but constitute a drop in the ocean, and I greatly fear they have found, as I have, that their efforts have been impeded by native prejudice and ignorance. Gradually, however, both prejudice and ignorance are being overcome, and those who have been successfully treated are not slow in telling their friends of their good fortune. How often on account of this ignorance and prejudice do we grieve for our lost opportunity! Look at this old woman who has just been led by her friends into the out-patient clinic. Old as she is she would still have had many years of useful life but for her calamity. Her friends are her nearest relatives, children and grandchildren, whom she cannot see. Her hands are as gnarled as the stout stick where-with she has hobbled in assisted by her offspring, the group constituting a picture of vigorous old age surrounded by a sturdy stock, who may in a future generation be afflicted with the same calamity, for this disease is often hereditary. There is a vacant stare in her eyes, the eyelids are widely opened, the pupils dilated and immobile, a nebulous moon-like haze is reflected from beneath her cornea, all indicative of an otherwise healthy body and nervous system vainly endeavoring to augment the feeble glimmer of light that falls on her decayed optic discs, and pierce what is to her an impenetrable gloom. She is buoyed up by the hope that complete darkness will not supervene if she can but be seen by the Western doctor. Alas! she has arrived too late for relief, too late for an operation which a few weeks or perhaps days earlier would have restored her sight and happiness. The prejudice of her friends has caused delay, and perhaps the soothsayer has declared that the moment is not a favorable one for travel, for she has journeyed many miles to see the Western doctor, and now even Western science is unable to cure glaucoma at such a stage.

Now contrast such a case with that of this middle-aged seamstress

who came into hospital a month ago suffering from the same disease. Over her right cornea may be seen the minute bleb of oedematous conjunctiva, indicative of a successful Elliott sclero-corneal trephining operation. She now sees comparatively well after a threat of eternal darkness, and returns because she complains of loss of vision in her left eye; the tonometer registers a rise of tension in the eye, and an explanation of her condition renders her only too willing to have the same operation performed.

In these two cases we have illustrations of despair and hope respectively, but the despair is not always the result of late arrival at the clinic. Let me assume that most of you are convinced, as I am, of the utility of the Elliott trephining operation for glaucoma, and of its great superiority over the old von Graefe irido-dialysis in both acute and chronic glaucoma. This assumption is but the result of my own personal experience and of conversations with Colonel Elliott himself; if I am too hasty in my assumption I pray you argue with me in your subsequent discussion.

There is a third class of cases which, whether the patient comes early or late, gives rise to despair; there must be few among you who have not met this type and felt despair similar to mine. I refer to the cases of so-called glaucoma simplex. In these cases we have a patient who comes complaining of loss of vision, and on examination with the ophthalmoscope we find a certain amount of cupping of the disc and atrophy of nerve fibres, but on testing the tension we find this to be within normal limits; if, however, we keep such a patient under close observation and test his tension from time to time with the tonometer we will invariably find that at certain times the tension will be raised above the normal. We do a trephining operation, and as far as the tension is concerned the operation is a success; but the case does not terminate here, for this patient's nerve fibres steadily atrophy and loss of vision proceeds from bad to worse till eventually blindness supervenes. What is this dread form of the disease? Is it atrophy with glaucoma as a coincident condition, or is it glaucoma with a coincident atrophy? In the present state of our knowledge we cannot say, and till we receive the results of extended observation we cannot finally decide. But to those of you who may be connected with the munificent generosity of the Rockefeller Foundation I would make a suggestion: call in

your expert radiologists and ask them to tell us what changes, if any, are to be found in the sella turcica or in the ethmoidal cells, for certain am I that in these cases we have some superadded disease. Continue your trephinations, for they can do no harm when properly conducted on the lines laid down by Colonel Elliott and may achieve brilliant results. My point is, however, that they do not always do so, and in such cases sorrow deep and lasting is the lot of the patient, chagrin and disappointment that of the surgeon who sees a blot on his record of beneficent care.

Do not charge these failures to the Elliott operation, for that operation is as brilliant as the man who devised it, and it is only his magnanimity and scrupulous fairness that induces him to include them in his own statistics.

Some of you may think me an optimist in my praise of the Elliott operation. Let me, therefore, relate an illustrative case which occurred in my private practice, which I have hitherto refrained from publishing.

Mrs. L., aged 60, first consulted me on June 2, 1913. She complained of pain and loss of vision in the right eye. The lids were very œdematous, the conjunctiva was œdematous and injected, the cornea was hazy, pupil widely dilated, anterior chamber shallow. The media were too hazy to admit of a view of the fundus. The tension was plus 2 and the vision was reduced to fingers at one metre. In the left eye the tension was normal.

The patient was admitted to hospital and Elliott's sclero-corneal trephining was performed with a 1.5 mm. trephine under local anæsthesia. The disc, of which .75 mm. was corneal and .77 mm. scleral, was cut with a posterior hinge as advocated by Elliott, and this hinge was at once raised by the iris. A button-hole iridectomy was performed with De Wecker's scissors, the disc hinge being included in the snip of the scissors. The patient made an excellent recovery though there was some basal iritis.

A fortnight later vision with plus 0.75 Sph. c. 0.75 cyl. 30°—6/12.

The patient was warned of the probable occurrence of the same condition in the left eye. On June 28th, almost a month later, glaucoma supervened in this eye, but unfortunately the patient was simultaneously attacked by acute heart failure, necessitating ether and strychnine injections. Removal to hospital was impossible in

the circumstances, and it was deemed inadvisable to operate. After six days she recovered sufficiently to be removed to hospital, but vision by this time had become reduced to the perception of hand movements. The eye was trephined in the upper circumference of the cornea, a 2 mm. trephine being used. As the patient was extremely nervous throughout the previous operation, a general anæsthetic, open ether, was administered. Convalescence was extremely protracted, but fortunately there was no recurrence of heart failure.

One month later the tension in the right eye was found to be 28 mm. and vision had improved to 6/9 with the same correction as before and with plus 2.75 D. added for near work, the vision—Jaeger 4.

The tension in the left eye was 25 mm. and the vision c. o. 25 cyl. H—6/9; with plus 2.75 D. added for near work, Jaeger 4 was read with ease.

This case is of interest, firstly, on account of the excellent result after an almost complete loss of vision; and secondly because the wisdom is indicated of performing in such cases a prophylactic trephining in the sound eye, as strongly advocated by Elliott. Cases of glaucoma, in which vision has been reduced to hand movements, and after trephining, there is recovery to 6/9 must, I should say, be rare.

Such a case goes far to compensate for one's failures in the third class of cases to which I have referred; this class might well be termed mixed glaucoma, seeing that there is present an atrophy of the nerve independent of the rise of tension. The man who named this form glaucoma "simplex" must have been somewhat of a humorist; I would suggest that the term "complex" would be more accurately descriptive of the disease.

Much ado has been made about late infection after trephining, but if Elliott's instructions are strictly carried out—that is to say, if in raising the flap of conjunctiva we dissect only down in the centre—then the bogey of late infection need not worry us. I have yet to meet such a case of late infection in my own practice.

I understand that our tonometry is to be made more easy as well as more accurate by the new McLean tonometer. If such should prove to be the case this instrument will be welcomed by

all ophthalmologists, and, judging by the descriptions of his work, the inventor must be a mechanical genius as well as expert ophthalmologist.

The statement has been made that in China one does not see the late nervous manifestations of syphilis such as locomotor ataxy and general paralysis. As far as my observations go, the statement is correct; but one cannot help being struck with the number of middle-aged, and sometimes comparatively young men and women, who suffer from syphilitic atrophy of the optic nerve; more rarely, but by no means infrequently, one sees infantile cases of the same nature. The atrophy invariably follows untreated cases of syphilitic neuritis, but if one can treat such cases early in the disease, when the neuritis has just commenced, gratifying results follow and the subsequent atrophy can be prevented or so reduced that the patient is left with a useful amount of vision. The treatment I have found most successful in such cases is a course of novarsenobenzol, followed by a series of intramuscular injections of colloidal mercury.

Even more common than optic atrophy is syphilitic uveitis as a cause of blindness. The extensive involvement of the ciliary body is shown by the occlusion of the pupil and frequently by ciliary staphylomata. Early in such cases a similar line of treatment is effectual, especially when combined with iridectomy, but in the late stages retino-choroiditis and subsequent neuritic atrophy neutralize our efforts.

I have purposely first singled out these two great causes of blindness, glaucoma and syphilis, because both are latent and insidious foes. In South China glaucoma affects mainly women; ocular syphilis mainly men; but together they constitute quite 30 per cent of all causes of blindness. There are two other main causes of blindness to be discussed, namely, gonorrhœal ophthalmia and trachoma. In south China these four diseases cause quite ninety per cent of all cases of blindness.

Let us turn our attention first to this infant-in-arms. Needless to say, he is of the male sex, for the lower class Chinese mother is less heedful of her daughters; she treasures this offspring, for in him she finds a newly risen hope as the future mainstay of her old age. Watch her anxiety as you examine carefully her infant and realize how terrible must be her disappointment when you

sadly shake your head as you see the pus, welling from beneath the child's closed eyelids, wiped away with the filthy rag the mother carries and as quickly welling up again and overflowing. The marvel is that in such cases the mother rarely contracts the disease from her infant. What has this child done to deserve eternal blindness, and why has not Western science been called in sooner? Fortunately, when the disease is not too far advanced we are able to prove the value of Western science, and in no other disease can such an object-lesson be given of the immense superiority of Western over Chinese treatment. I have recently been much impressed with the value of *sitvol* in these cases. A ten per cent solution applied hourly, after suitable cleansing, has worked wonders in many cases; its application is not painful, so that there is no injurious blepharospasm after it has been applied.

Here is a young man of twenty-two years in whom one can see the end result of an adult infection. He has pinned his faith to Chinese treatment and repents too late; witness his grey infiltrated leucomatous cornea, ectatic in places where Descemet's membrane has been stretched over a threatened perforation, only to give way in another part of his cornea, where you can see the iris still prolapsed and adherent. This patient sees a glimmer of light through the ectatic portion of his cornea, and when there is light, however feeble, such a patient vainly hopes that sight can be restored. The cornea of the adult has not the resistance of that of the infant, and, unless he comes for treatment at the very outset of his disease, he is doomed to blindness or partial blindness. We who know we can prevent blindness at the outset of the disease feel justifiable exasperation at an opportunity missed through native ignorance and lack of suitable enlightenment by those responsible for the welfare of the nation.

Lastly, we come to the greatest scourge of all—trachoma, a scourage affecting infants, school children, middle-aged, and old people alike.

The method of infection in all four of these classes of patients is the same, namely, the common wet household towel used by all the members of the household indiscriminately among the lower classes in China; but, though the infective agent is common to all, the means of spreading the disease is different in each case.

Take the case of this infant of fourteen months. The very first feature we notice is that it shuns the light; while it was resting in its mother's arms in a shaded corner of the clinic it was quiet because it kept its head turned from the light; but now that the mother has come forward to have the child examined, and has as a preliminary measure turned the child's head round to the light, it at once begins to whimper, nor can we effectually examine the child till we turn its back to the light. We then notice that the child is anæmic, ill-nourished, and bloated looking, with an eczematous condition of the skin of its eyelids and face, blepharitis is present with little cracks and excoriations at the outer canthi, causing blepharospasm. We evert the lids with great difficulty and find a well-marked papillary type of trachoma, which is complicated by the presence of phlyctenules on the conjunctiva and cornea—the so-called kerato-conjunctivitis eczematosa, causing a profuse watery discharge. In such cases this complication is the main cause of the spread of trachoma to healthy individuals.

Now look at this school-boy with his intensely red and injected bulbar conjunctivæ. The condition of his everted lids is similar to that of the infant just examined, but he has an intense discharge with little flakes of lymph adhering to his hypertrophied retrotarsal folds of conjunctiva. If this discharge is suitably stained and then examined under the microscope, we shall find either Koch-Weekes bacilli or pneumococci present in large numbers both inside and between the cells. Sometimes we find the diplo-bacillus of Morax Axenfeld. These are the main causes of spread of trachoma in school children.

In older people the chief cause of infection to others lies in the eyelid changes, distortion of eyelashes, and entropion promoting constant discharge and watering of the eyes till we have our final sad picture of leucomata, pannus, and xerosis, causing almost complete blindness—all quite unnecessary and all preventable if adequate provision is made by the government for suitable inspection.

The saddest picture of all is presented by this old woman with her inturned eyelashes. Think of the years of suffering she must have undergone, quite unnecessarily, in the process of her complaint! She stands before us now with her eyelashes, completely hidden from view, brushing against her now insensitive cornea,

which is lined and seamed with scar tissue. When we think of the delicate Vth nerve terminals in the cornea, we can imagine with a shudder the suffering she must have undergone before she reached her present state. Picture to yourselves the early Christian hermit with his self-inflicted penance of the hair shirt next his skin, his suffering was as nought compared to the suffering this woman must have undergone, and I warrant you could he have inflicted this woman's woe upon himself he would have rapidly induced a saner outlook upon his religion. All this has this woman endured simply for the want of an easily-performed plastic operation, which can be done under local anæsthesia, restoring her eyelids to their proper position. We can put her in comfort now but we cannot restore her sight, because in the course of years some of the scar tissue in her cornea has penetrated Bowman's membrane, thus rendering the opacity permanent. How can those in authority stand by and see such suffering rife among their nationals and not raise a finger to ameliorate such a state of affairs?

I suppose the greatest joy of all ophthalmic surgeons is the restoration of sight to those suffering from cataract; in China, however, we are too often "stymied" by glaucoma and obstructed by pannus. Were it not for this we could show as brilliant a record as any that can be put forward by the government of India with its splendid Indian Medical Service. Glaucoma can be cured in 90 per cent of cases, and trachoma can be absolutely eliminated by adequate government inspection of schools and the laboring classes. Let it not be supposed that we preach what we do not practise. In Hongkong no school receives its grant-in-aid from the government till it produces its certificate of adequate medical inspection. Eye diseases are ruthlessly excluded from all schools, and other diseases are dealt with. An analogous condition of affairs to that obtaining in China formerly existed in Egypt, but there has been a very great amelioration by the establishment of a directorate responsible to the Central Administration under the Minister of the Interior.

This directorate is responsible for the ophthalmic hospitals, both permanent and travelling, and for the ophthalmic inspection of schools. "There are thirteen permanent eye hospitals and five travelling hospitals with a staff of twenty-nine doctors carrying on a most beneficent prophylactic and curative work. These hospitals

serve as training centres in ophthalmic surgery, and many medical men have passed through the post-graduate courses held in them. Women and children form the greater number of the patients who suffer from trachoma, trichiasis, corneal opacities, cataracts, and indeed every form of eye affection—people flock to them, 81,000 patients being now treated in them annually.” (Dr. Andrew Balfour: The Problem of Hygiene in Egypt, *The Lancet*, September 13, 1919.) Providence helps those who help themselves, and the establishment of an ophthalmic hospital in Egypt ranks equal in credit to the establishment of a place of worship.

It is within the functions of a Conference such as this to pass a resolution calling the attention of the Chinese Government to these widespread causes of blindness, causes which are of a preventable nature, pointing out that with the large and increasing number of Western-trained graduates now present in China a great opportunity exists for the Government to take radical measures for the relief of the situation. With this object in view and subject to the permission of the Conference I beg to propose the following resolution:—

“That in the opinion of this Conference the time is now ripe for the establishment in China of a Ministry of Health. That under such a ministry, among other directorates, there should be one for the medical inspection of schools and for the establishment of ophthalmic hospitals, both permanent and travelling, throughout China to deal with the widespread prevalence of eye diseases leading to blindness. That by this means remedial measures may be provided for the prevention of blindness and the relief of suffering, thereby greatly enhancing the economic value of the nation.” *

* The resolution was passed unanimously by the Conference.

ANNOUNCEMENT

The National Board of Medical Examiners has just completed the first five years work and with it the trial period of its usefulness. The principle which this Board has stood for, namely, the establishment of a thorough test of fitness to practice medicine which might safely be accepted throughout this country and abroad, has been widely accepted. Since this Board was organized by Dr. W. L. Rodman, in 1915, eleven examinations have been held. These examinations have been conducted on the plan of holding at one sitting, a written, practical and clinical test for candidates with certain qualifications, namely a four-year-high-school course, two years of college work, including one year of physics, chemistry, and biology, graduation from a class A medical school and one year's internship in an acceptable hospital. These examinations have covered all the subjects of the medical school curriculum and have been conducted by members of the board with members of the profession resident in the place of examination appointed to help them. Such examinations have been held in Washington, Philadelphia, New York City, Boston, Chicago, St. Louis, Rochester (Minnesota), and Minneapolis. During the war a combined examination was held at Fort Oglethorpe and Fort Riley. There have been 325 candidates examined, of whom 269 have passed and been granted certificates.

Starting with the endorsement of the Council on Medical Education of the American Medical Association, American Medical College Association and various sectional medical societies, the recognition of the Army, Navy and Public Health Service Medical Corps of the United States and certain State Boards of Medical Examiners, the certificate is now recognized. Also by twenty states as follows: Alabama, Arizona, Colorado, Delaware, Florida, Georgia, Idaho, Iowa, Kentucky, Maryland, Minnesota, Nebraska, New Hampshire, New Jersey, North Carolina, North Dakota, Pennsylvania, Rhode Island, Vermont, and Virginia, the Conjoint Board of England, the Triple Qualification Board of Scotland, the American College of Surgeons and the Mayo Foundation of the University of Minnesota.

There has been such a widespread demand for an opportunity

to secure this certificate by examination, that the board has now adopted and will put into effect at once, the following plan: Part I, to consist of a written examination in the six fundamental medical sciences: anatomy, including histology and embryology; physiology, physiological chemistry, general pathology, bacteriology, materia medica and pharmacology. Part II, to consist of a written examination in the four following subjects: medicine, including pediatrics, neuropsychiatry, and therapeutics; surgery, including applied anatomy, surgical pathology and surgical specialties; obstetrics and gynecology; public health, including hygiene and medical jurisprudence. Part III, to consist of a practical examination in each of the following four subjects: clinical medicine, including medical pathology, applied physiology, clinical chemistry, clinical microscopy and dermatology; clinical surgery, including applied anatomy, surgical pathology, operative surgery, and the surgical specialties of the diseases of the eye, ear, nose and throat; obstetrics and gynecology; public health, including sanitary bacteriology and the communicable diseases.

Parts I and II will be conducted as written examinations in class *A* medical schools and part III will be entirely practical and clinical. In order to facilitate the carrying out of part III, subsidiary boards will be appointed in the following cities, Boston, New York, Philadelphia, Minneapolis, Iowa City, San Francisco, Denver, New Orleans, Baltimore, Galveston, Cleveland, St. Louis, Chicago, Washington, D.C., and Nashville, and these boards will function under the direction of the national board. The fee of \$25.00 for the first part, \$25.00 for the second part and \$50.00 for the third part will be charged. In order to help the board the Carnegie Foundation has appropriated \$100,000.00 over a period of five years.

At the annual meeting held June 13th, of this year in Boston, the following officers were elected, M. W. Ireland, Surgeon-General, President; J. S. Rodman, M.D., Secretary-Treasurer; E. S. Elwood, Managing Director.

Mr. Elwood will personally visit all class *A* schools during the college year to further explain the examination, etc., to those interested. Further information may be had from the Secretary-Treasurer, Medical Arts Building, Philadelphia.

ABSTRACTS, REVIEWS, SUMMARIES AND CONCLUSIONS FROM THE CURRENT LITERATURE

Hemolytic Influenza Bacilli. T. M. Rivers and E. L. Leuschner, Johns Hop. Hosp. Bull., April, 1921.

On account of the meager description given to the original *B. influenzae*, especially concerning hemolysis, it seems best to regard both hemolytic and non-hemolytic aerobic, non-motile, Gram-negative, hemoglobinophilic bacilli as influenza bacilli and disregard any such confusing terms as "Bacillus X" which in itself represents not one organism but a group. After all, it makes very little difference what any of these bacilli, non-hemolytic or hemolytic, are called, so long as everyone recognizes that they belong to the same big group.

Growth Requirements of Influenza Bacilli. T. M. Rivers and A. K. Poole, Johns Hop. Hosp. Bull., June, 1921.

The phenomenon of augmented growth of influenza bacilli in the vicinity of other bacteria on solid media may be due to any one or, at times, all of the following factors:

(a) The removal of inhibitory substances that are marked in certain bloods, as human and hen's blood.

(b) The change of the hydrogen-ion concentration to one more favorable for the growth of influenza bacilli.

(c) The alteration in the blood, making growth substances more available.

(d) The production by the symbiotic bacteria of an autoclave labile substance necessary for the growth of influenza bacilli.

Two substances are essential for the growth of influenza bacilli. Both are in blood. One resists autoclaving half an hour under 15 pounds pressure, the other does not. The autoclave stable substance is not hemoglobin, although it may be derived from the blood pigment, and as yet has not been found outside of blood. The autoclave labile substance has been obtained also from yeast.

In what way these two factors operate to promote the growth of influenza bacilli is not known.

Intussusception. A. M. Forbes, Amer. Phys., June, 1921.

What could have been the matter with this child? She was apparently suffering from some acute abdominal condition. There were signs of beginning obstruction. She had vomited frequently. She had been in pain which was likely of a colicky nature, and most important, she had passed blood by rectum.

Is there any condition other than intussusception which would give these symptoms? This acute onset, this colicky pain, vomiting, the passage of blood and suggestions of obstruction? This history in itself was sufficient to diagnose intussusception. The diagnosis was confirmed when the suggested tumor was felt in the right half of the abdomen.

The Bacteriology of Chronic Nontuberculous Lung Disease. Horace Greeley and Mae Brereton, Jl. Lab. and Clin. Med., April, 1921.

Various higher fungi may be cultivated from the sputa of chronic nontuberculous, and probably from many cases of tuberculous lung disease. This is most easily done through the use of selective media.

Evidence is adduced that such organisms are extremely numerous in such sputa, and that they probably are potent in the disease process, acting alone in some cases, and in cooperation with the tubercle bacillus in a few others.

As of assistance in the eventual complete identification and classification of the organisms to be found in sputa, it is thought that important evidence has been adduced of the extreme pleomorphism of certain fungi, probably common therein under forms morphologically representing yeasts, cocci, and bacilli.

Impetigo Contagiosa. David L. Farley and Frank Crozier Knowles, Arch. Derm. and Syphilol., June, 1921.

With proper precautions and under proper conditions streptococci may be obtained from nearly all cases of impetigo. If the full complement of streptococci is to be obtained on culture, it is necessary to take the material from an early and unerupted

lesion. If this is not possible, it should be taken from the deep, redder parts from which all crusts have been removed.

Accepting as we do the conclusions of previous workers that impetigo is caused by streptococci, at least four different strains are concerned: *Streptococcus pyogenes*, *Streptococcus anginosus*, *Streptococcus subacidus* and *Streptococcus fecalis*.

Associated organisms, such as staphylococci, pseudodiphtheria bacilli, etc., are either extraneous or secondary invaders.

Streptococcus fecalis is not the factor in America that it was in Flanders, and there is little likelihood that it has been recently imported.

It cannot be predicted from the aspect of the clinical lesion (bullous, crusted or ecthymatous) what strain of streptococcus will be found on culture.

Studies on the Anatomy and Muscular Action of the Small Intestine. Eben J. Carey, Intl. Jl. Gastro-Ent., July, 1921.

The inner muscular coat of the small intestine is a continuous muscular sheet wound in a close spiral. One complete turn is made in every 0.5 to 1 mm. or less. The outer muscular coat forms an elongated spiral which makes one complete turn in every 200 to 500 mm. or more. The submucosa is composed of connective-tissue fibrils forming an inner close and an outer elongated spiral. The inner one makes one complete turn in every 0.5 to 1 mm. or less, the outer in every 4 to 10 mm. The inner muscular layer, therefore, is wound as a close spiral, the outer as an open spiral. The difference in rate of translatory progression of the two contraction waves depends upon this muscular arrangement. The wave traveling in the inner group of fibers takes a rotary course, whereas, that in the outer fibers takes a more translatory course, to reach a corresponding destination. Therefore the contraction of the stronger inner muscle coat will inevitably trail that of the outer. The arrangement of the intestinal muscle layers clearly explains the phenomenon of cephalic constriction and caudal dilatation of diastalsis without invoking the aid of hypothetical nerve paths. Peristalsis, therefore, is a duplex contraction phenomenon produced by the

differential rate of translatory advance of the two contraction waves in the outer and inner muscle layers respectively. These conclusions are based on experiments in which the outer and inner coats were excised in the living gut of the pig.

Blastomycetoid Bodies in a Sarcoma-like Tumor of the Leg. Frederick D. Weidman and Henry R. Douglas, Arch. Derm. and Syphilol., June, 1921.

A fungus growth on the leg, clinically suspected as sarcoma, was first regarded on histologic examination as lupus vulgaris. Further study showed a vascular granulation tissue, tubercle-like granulomas and blastomycetoid bodies. Elastic fibers were found to have evoked foreign body giant cell production in both this and known cases of blastomycosis.

The cause of the lesion under consideration is left an open question, but it is insisted that the "bodies" are higher fungi and not degenerative tissue products or concretions.

Amebic Abscess of the Liver. P. K. Gilman, Calif. State Jl. Med., June, 1921.

Amebiasis and resultant abscess of the liver is by no means confined to the tropics. It occurs not uncommonly in the United States. In California several cases have come under our observation which have never been outside the state.

In addition to causing abscess of the liver the ameba is able to set up changes in the mucous membranes of the gall bladder, bile ducts and appendix. It is possible that every case infected by amebae harbors the organism not only in the intestinal tract but the liver and bile passages even when no gross pathological changes are produced in these structures.

In incurable cases of intestinal amebiasis Gunn has demonstrated the organism in the mucosa of the appendix, gall bladder and excreted bile after cholecystectomy.

No sign or symptom is characteristic of the disease. It is only by a careful consideration of all available data and often by elimination that the correct diagnosis is reached.

The prognosis with the institution of early treatment is encouraging. A complicating dysentery renders it less favorable. In the earlier cases the mortality was about 30 per cent. In the later cases this has been considerably reduced.

Is Lupus Erythematosus Discoides Chronicus Due to Tuberculosis? William H. Goeckerman, Arch. Derm. and Syphilol., June, 1921.

The incidence of clinical tuberculosis in dermatoses admittedly of nontuberculous origin (32.1 per cent) is approximately as high as in lupus erythematosus discoides chronicus (35.7 per cent.).

Clinical tuberculosis is no more frequent in dermatoses-like erythema multiforme and erythema nodosum (32 per cent.), in some instances apparently of tuberculous origin, than in lupus erythematosus discoides chronicus (35.7 per cent.).

The frequency of clinical tuberculosis in patients with known tuberculids (84 per cent.) presents a striking contrast compared with the frequency of clinical tuberculosis observed in lupus erythematosus discoides chronicus (35.7 per cent.). This contrast is so great that the belief seems acceptable that lupus erythematosus discoides chronicus cannot have a pathogenesis identical with that of the tuberculids.

The tuberculous origin of lupus erythematosus discoides chronicus has not been proved by experimental work. Clinical observation, including this statistical study, seems to favor varied etiologic factors.

A Study of the Histologic Changes Produced Experimentally in Rabbits by Mercurial Compounds. John A. Kolmer and B. Lucke, Arch. Derm. and Syphilol., April, 1921.

The administration to rabbits of different soluble and insoluble mercurial compounds commonly employed in the treatment of syphilis, by intramuscular and intravenous injection, inunction and oral administration, and in amounts analogous to the maximum doses given to human beings, resulted in the production

of tissue changes in all organs examined, namely, the brain, heart, lungs, spleen, liver and kidneys.

The most conspicuous changes were found in the brain in the nature of perivascular round cell infiltrations, and in the kidneys, as tubular and capsular glomerulonephroses of varying degrees of severity. Details of the histologic changes in these and the other organs included in this study are described.

The degree of tissue injury caused by the different preparations of mercury appears to bear a direct relation to the actual amounts of pure mercury absorbed irrespective of the kind of preparation and route of administration.

Trauma—Its Relation to Nervous Diseases of Undetermined Pathology. Joseph Catton, Calif. State Jl. Med., May, 1921.

In assigning to trauma a place in the etiology of paralysis agitans, the following criteria should be satisfied. In infectious medicine Koch's postulates are demanded, and nothing short of their satisfaction will place a given bacteria in casual relation to a given pathological condition. In neurological medicine, likewise, associations of this sort should be more than beliefs.

These are suggested criteria:

The syndrome must be demonstrated.

The occurrence of trauma, and of sufficient trauma must be established.

The pathology which is the basis of the disease must be shown to be capable of resulting from the trauma received.

There must be demonstrated a bridge of pathology with or without symptomatology from accident to the picture presented—a time relation.

Other causes must be negated as having occurred in the interval between the accident and the first appearance of symptoms.

It must be demonstrated within reason that the syndrome was not present before the accident. The possibility of the syndrome itself causing the injury must be borne in mind. (Photographs, handwriting and the wearing out of shoes, at different periods before and after the accident, may help in placing the date of

beginning of symptoms.) This criterion is a difficult one to satisfy, but it must be satisfied if a scientific proof of the causal relation of trauma to paralysis agitans is to be furnished.

A New Menace from the Mosquito. Amer. Phys., June, 1921.

Filariasis is a form of tropical infestation now endemic in parts of the southern United States, the motile microfilariae being thirty times as long as the width of a red blood corpuscle but narrow enough to traverse the capillaries; they are the offspring of parent worms (males $1\frac{1}{2}$ inches long, females $3\frac{1}{2}$ inches) which live and breed in some tissues of the body, or in the lymphatic system, the female discharging her numerous progeny into the circulation, where they are active only during the night, even forty or fifty millions of them giving rise to no especial symptoms.

The pathology of filariasis is due to the adult worm (rarely more than eight in one individual) obstructing the thoracic duct or occluding the smaller lymphatic vessels or the lymph glands, giving rise to lymph edema or varicosity in the undrained area, chyluria, chylocele, chylous ascites or elephantiasis.

Several species of mosquito are the intermediate hosts, the mosquito biting an infested man, imbibing microfilariae which undergo metamorphosis in the tissues of the insect, and when one twenty-fifth to one-sixteenth inch long enter the proboscis of the mosquito, which may infest a healthy man by its bite, the larva or larvæ passing by way of the lymphatics to the nearest lymph gland, growing to adult life and discharging large numbers of microfilariae into the circulation.

Thus the infestation is spread from man to man by the agency of the mosquito, which alone transmits the disease.

The Roentgenologic Aspects of Osteitis Deformans Pagets Disease, with Reports of 15 Cases. R. D. Carman and W. M. Carrick, J1. Radiology, April, 1921.

As the clinical diagnosis of osteitis deformans is not always possible, especially in the early stages of the disease, careful

roentgenographic study should be made of many bones, particularly of the skull and long bones, of all patients suffering from bone deformity or bone pain.

The possibility of bone metastasis should be kept in mind when osteitis deformans is diagnosed in the spine and pelvis.

Many bones are involved by the disease process and the bone changes when seen in the skull are pathognomonic.

La Radio Diagnosi Delle Malattie Gastriche al Controllo Operativo Osservazioni Critiche. Prof. Mario Ponzio, Torino, Italy. Intl. Jl. Gastro-Ent., July, 1921.

The author lays great stress on the importance of X-ray diagnosis controlled at the operating table, so that the radiologist would become proficient in interpreting doubtful symptoms which are not clear to him only because he does not know how to interpret them. X-ray diagnosis of gastro-intestinal disturbances has reduced the number of errors to less than 20 per cent. X-ray investigation enables us to explore a new field, that is the physiopathology of the organs operated upon. X-ray investigation should in many cases substitute exploratory laparotomy, specially when the patient is in a precarious condition.

The interpretation of findings, both by radiography and radioscopy supplemented by clinical investigation, makes the diagnosis of gastric lesions very satisfactory.

The gastric lesions which can be revealed by X-ray examination may depend: (1) from lesions of other abdominal organs which do not interest the stomach directly; (2) from lesions located close to the stomach and directly connected either anatomically or functionally with it; (3) from organic lesions of the stomach itself, which are (a) functional; alteration in secretion, catarrh, ptosis and atony, gastric neurosis; (b) organic; ulcers, tumors.

Conditions of other organs might influence the function of the stomach and be located in the colon, in the pregnant womb, in abdominal tumors so that the shadow of the stomach is deformed, although the stomach itself is normal. The deformities are also observed following psychic conditions. In many of

these conditions pneumo-peritoneum is of great help. In these cases, however, the complete examination of the patient is necessary and each organ should be examined radiologically, especially in regard to adhesions which are revealed so beautifully by the pneumo-peritoneum.

Abnormal peristalsis, lesions of the biliary tract, appendicitis, colitis, annexitis, perinephritis have to be excluded by thorough investigation and the X-rays are most valuable because they give indication as to the opportunity of surgical intervention and the time for such.

The lesions of the stomach offer the greatest field to radiological investigation. It has to be remembered, however, that complete clinical investigation is also necessary. The lesions that interest the surgeon most are ulcers and tumors, and in making the radiological diagnosis the radiologist has to take into consideration all the data that might influence the peristalsis and the shape of the stomach, specially in regard to vagotonic disturbances and the functional alteration of the stomach must be studied by the radiologist with the view of differentiating them from real organic lesions, which are simulated in many cases of neurasthenia, tabes, etc.

Ulcers of the stomach can be diagnosed in practically 95 per cent of the cases and, in the author's personal statistics of 513 cases, very few mistakes were made in diagnosis, which was confirmed in 93 cases that underwent operation. The author explains in detail how the diagnosis of ulcer can be made and how it is difficult to differentiate between benign and malignant ulcers. He also studies completely the mechanism of evacuation of the stomach before and after surgical intervention and explains the advantages of the different procedures in the treatment of both ulcer and cancer of the stomach.

The author insists on the early diagnosis of ulcer and cancer and of the early differentiation between these conditions, for the obvious reason that early operation should be advised when cancer is suspected. In cases of cancer, the radiological investigation can give a very good indication, not only about the location and the extent of the lesions but also the advisability of surgical intervention. He points out that naturally the con-

dition, better diagnosed by X-ray and operated more successfully, is cancer of the pyloric portion of the stomach and explains in detail how the diagnosis should be made.

The author reaches the following conclusions: It is an accepted fact that the radiological examination of every patient who is suffering from gastric disturbances or disturbances that can be referred to the stomach is of the greatest value. Such examination should never be neglected, because it gives indications about the diagnosis, and the proper line of treatment, and when properly conducted is the best control to gauge the value of the different therapeutic means employed. Naturally this control is most valuable to study the gastric functions after surgical operation, because in these cases the gastric functions have been so altered that the X-rays are the only means that can give valuable assistance in adopting the proper therapeutic means. The great progress made by medical and surgical treatment of the stomach depends on the fact that these lesions can be treated in their early stages because the X-rays do afford their diagnosis in the early stages.

Ice-Water Bath in Complement Fixation for the Wassermann Reaction—A Shortened Technic. W. W. Duke, *Am. Jl. Syphil.*, April, 1921.

The use of an ice water-bath for one hour for complement fixation for the Wassermann test gives as complete a degree of complement fixation as incubation in the *ice box* for four hours. The use of an ice water-bath, therefore, shortens the refrigeration technic three hours without altering its accuracy. For this reason its use is recommended.

Syphilis of the Heart. Harlow Brooks, *Am. Jl. Syphil.*, April, 1921.

Syphilis involves the heart with great frequency both in early and in its later stages of the infection.

Syphilitic lesions of the heart may involve the pericardium, the myocardium, the endocardium, and the conus arteriosus.

The most frequent lesions apparently originate or progress about the terminals of the coronary system, and they are located for the greater part in the myocardium.

Any form or stage of syphilitic lesion except chancre may be found in the heart.

Cardiac involvement may appear very early in the infection when it may terminate fatally, it may long remain quiescent or first become apparent late in the disease.

The signs and symptoms of syphilis of the heart are simply those resulting from the particular lesion present and often develop few or no definite clinical characteristics aside from their association with a history of infection, the Wassermann reaction, and the relief of symptoms and signs under specific treatment.

Diagnosis rests chiefly on a history of infection, concomitant signs of it in other tissues, the positive Wassermann reaction, and notably on relief under specific treatment.

Acute Syphilitic Nephritis. J. A. Elliott and L. C. Todd, Arch. Derm. and Syphilol., May, 1921.

Acute syphilitic nephritis is an infrequent complication of syphilis.

The diagnosis depends on: (a) the existence of any early syphilis; (b) the high albumin content of the urine with a relatively small number of casts; (c) therapeutic tests.

Concerning the Specificity of Cholesterinized Antigens in the Serologic Diagnosis of Syphilis. Robert A. Kilduffe, Arch. Derm. and Syphilol., May, 1921.

All Wassermann reactions should include at least three antigens of varying delicacy: preferably a cholesterinized extract of human heart, an extract of acetone-insoluble lipoids, and an alcoholic extract of syphilitic fetal liver.

Wassermann reports should give the antigens used, the reaction to each, and the interpretation of the reaction as a whole, with, perhaps, the dose of serum tested and the method of fixation.

Reactions with cholesterinized antigens of ++++ or +++ degree are indicative of the presence of syphilitic "reagin" in the blood.

Reactions with cholesterinized antigens below the grade of +++ should be looked on as suspicious and as indicating the necessity for further investigations and should not be looked on as invariably false or proteotropic fixations.

Syphilitic patients under treatment should remain under observation until complement-fixation tests are repeatedly negative to cholesterinized extracts, not only with the blood serum but, if possible, with the spinal fluid.

Since this paper was written a notice of work done by Wassermann is available concerning the results of investigations begun before the war and only recently completed. It is said that he has demonstrated in the blood of syphilitic patients a lipid which has been isolated, and that he has shown that this substance is capable of causing the production of true antibodies. To quote from the report: "The syphilitic suffers from an inversion (Umstellung) of lipid metabolism which explains why the Wassermann reaction is positive, not only with extracts from the organs of syphilitic children, but also with all organ extracts containing lipid-like substances."

Details as to the character of his experiments are not as yet available, but it can be assumed that these results will give further assurance as to the specificity of cholesterinized extracts as antigens in the Wassermann reaction.

The Wassermann Reaction: Reasons for Discrepancies in Estimation of Clinical Value: Necessity for Uniformity and Standardization: Suggestions: Report of a Series and Interpretation. Henry M. Ray, *Am. Jl. Syphil.*, April, 1921.

In spite of the multitude of modifications and newer methods for the serodiagnosis of syphilis, including the phenomenon of Vernes recently revived by Cornwall and Aronson, the classical Wassermann reaction or a technic which departs from it only in minor details, stands today as the only reliable laboratory test for syphilis.

The reasons for the growing lack of confidence in the Wassermann reaction on the part of clinicians are presented, together with a discussion of the causes for discrepancies in estimation of clinical value.

Attention is called to some of the pitfalls of the reaction and the observation of the clinician is directed to the features of the reaction which he ought to know, in order to be able to more properly interpret serological findings. Thus, the clinician would be in a position, as he has a right to be, to demand from the serologist not merely a report of positive or negative, but a report of the antigens used in the test with the methods of fixation and himself interpret the serological findings on a basis of clinical manifestations.

The great need for standardization with the benefits to be derived therefrom is called attention to, and some suggestions are offered to bring about uniformity.

A series of 580 reactions performed with crude and chloesterinized extract each with two methods of fixation, namely, the one hour incubator and four hour ice box methods, is analyzed with the following conclusions:

A positive reaction with cholesterinized antigen alone should be given no specific significance in untreated cases presenting no clinical manifestations of lues and giving a negative history.

The four hour ice box method of fixation, while increasing the sensitivity of the cholesterin antigen as compared with the one hour fixation in the water-bath, magnifies the nonspecificity, except in treated cases, congenital syphilis and in some cases of neurosyphilis, where it has a decided advantage. On the other hand, with the crude extract, the four hour ice box method of fixation while increasing its sensitivity, does not impair, but rather augments the specificity.

The cholesterinized antigen possesses a specific sensitivity exceeding that of crude in all cases of syphilis under treatment, congenital syphilis, and in some cases of neurosyphilis.

The great value and importance of lumbar puncture in all cases of syphilis is emphasized. A spinal fluid examination, including cell count, globulin estimation, colloidal gold and Wassermann reactions is imperative before a prognosis in any

case can be given, in spite of the fact that treatment has produced a Wassermann negative blood.

A Biologic Study of Latency in Syphilis. Martin F. Engman and Frederick Eberson, Arch. Derm. and Syphilol., April, 1921.

In this study *Spirochaetae pallidae* have been isolated in five instances from latent syphilitic patients—three times from inguinal glands (two female and one male) and twice from the semen. The strains produced typical syphilitic lesions in rabbits' testicles and could be recovered and propagated for an indefinite number of generations. The incubation periods of spirochetes isolated from the gland were, respectively, 50, 54 and 133 days, the last being doubtful owing to an early secondary infection in the experimental animal. The two strains which were isolated from the semen developed after four and seven months, respectively.

Spirochaetae pallidae were isolated from patients who gave a history of syphilis dating back eleven and thirteen years in two instances and one year in three instances. An inguinal gland and the semen proved positive for spirochetes in the two first cases mentioned and the glands and semen in the last named. In this series of positive results, a gland was found to be infectious in the case of a man whose Wassermann reaction had been negative, following treatment, and at the time of taking a specimen for the experiment gave a ++ reaction in the cholesterin antigen only. A second instance of this nature was found in the case of a specimen of semen which proved positive for *Spirochaetae pallidae*.

As far as studies with these different strains have progressed, there is no indication that *Spirochaetae pallidae* have lost in virulence for the rabbit. Detailed experiments on infectivity and other phases of experimental syphilis with these and other strains will be reported subsequently.

It appears from this investigation and from that of others that the blood and other body fluids, excepting semen, are not infectious in latent syphilis, or if so, rarely.

Incubation of blood from latent syphilitic patients did not

favor any infectious property which might have existed. Thirty-six specimens, duplicates of those in the series, were incubated at 37 C. for from three days to four months before injection into rabbits' testicles. The results were negative.

One third of the total number of spinal fluids from latent syphilitic patients gave evidence of lymphocytosis, and one gave a positive Wassermann reaction.

Tonsils could not be studied owing to severe secondary infections which were set up in the experimental animals. In one case, a darkfield examination showed what appeared to be *Spirochaetae pallidae* in an emulsion of a tonsil taken from a child with a family history of syphilis and himself giving a positive Wassermann reaction, although free from symptoms or visible lesions. The rabbits failed to survive injection of material.

The groups studied were composed of untreated patients, as well as of those who had received no treatment within the past two years. Between the time of taking specimens for inoculations of rabbits and the first symptoms or a suggestive history of syphilis in these patients, from one to forty years had elapsed.

Of a total of 500 cases of syphilis, which were seen at the clinic, seventy-five, or exactly 15 per cent., of the number were definitely latent.

These investigations demonstrate the fact that those who give a history of a syphilitic infection may harbor active virulent *Spirochaetae pallidae* for years, and this in the face of irregular negative Wassermann reactions or slight reaction in the cholesterin antigen only

Visceral Syphilis. Syphilis of the Intestine. Udo J. Wile, Arch. Derm. and Syphilol., April, 1921.

Diagnosis.—Depending on the stage of the process and the location of the lesions, the cases of intestinal syphilis must be differentiated from carcinoma, tuberculous enteritis, intestinal obstruction and from adhesive peritonitis with narrowing of the lumen. With our modern laboratory tests and the careful scrutiny of all patients before operation, cases of intestinal

syphilis should be somewhat more easily recognizable. The positive Wassermann test, in association with symptoms such as have been described, may be regarded as presumptive evidence at least of syphilis as the cause of the intestinal involvement. In any event, such patients should be given the benefit of vigorous antisyphilitic treatment before other measures are decided on. Without the laboratory aid, the differential diagnosis at the bedside is acknowledged to be difficult, if not impossible. The cases are far too few for any one clinician to have had extensive clinical experience. In this connection it must also be remembered that intestinal syphilis may occur with a negative Wassermann reaction, such as in Fischer's case; and that the positive Wassermann reaction may be the result of syphilis incident to another intestinal condition.

Prognosis.—The prognosis is bad, perhaps largely due to the failure of early diagnosis. There are probably many cases in which intestinal lesions occur in which spontaneous healing with more or less narrowing of the lumen of the intestine occurs, and in which the patients spontaneously recover. Cases, however, with distinct symptoms of ulcerative enteritis usually drag on undiagnosed for so long that serious complications make the prognosis unfavorable.

A Study of the Histologic Changes Produced Experimentally in Rabbits by Neo-Arsphenamin. J. A. Kolmer and B. Lucke, *Arch. Derm. and Syphilol.*, April, 1921.

The intravenous injection of single massive and multiple smaller doses of neo-arsphenamin into rats and rabbits produces vascular injury, cellular degenerations and necrosis similar to those produced by solutions of disodium arsphenamin. The histologic changes found in the cerebrum, cerebellum, brain stem, meninges, heart, lungs, liver, kidneys, suprarenals and spleen are described.

The tissue changes produced by neo-arsphenamin are less severe than those produced by solutions of disodium arsphenamin when considered in relation to dosage per kilo of body weight.

The changes described were produced in equal degree and with equal frequency by neo-arsphenamin prepared by different laboratories.

A Study of the Histologic Changes Produced Experimentally in Rabbits by Arsphenamin. J. A. Kolmer and B. Lucke, Arch. Derm. and Syphilol., April, 1921.

The intravenous injection of lethal doses of acid non-neutralized solutions of arsphenamin in experimental animals produces widespread and severe vascular injury characterized by congestion, thrombus formation and hemorrhage; later cellular degeneration and necrosis take place.

The intravenous injection of single large doses of solutions of disodium arsphenamin (ten times larger than the maximum amount administered to human beings at one time) produce severe vascular and tissue alterations, particularly in the liver, kidney, suprarenals and spleen.

The intravenous injections of multiple therapeutic doses of solutions of disodium arsphenamin corresponding to doses of 0.6 gm. per 60 kilos of body weight, produce inconspicuous tissue alterations that do not appear to be sufficiently pronounced to interfere with the functions of the organs.

Detailed descriptions of the histologic changes found in the brain and meninges, heart, lungs, liver, kidneys, suprarenals and spleen are given.

These changes were induced by arsphenamin prepared by several different laboratories.

These histopathologic changes probably bear an important relation to arsphenamin reactions and to methods of arsphenamin therapy.

A Report of Two Cases of Scurvy in Breast-fed Infants. Alberto V. Tupas, JI. Philip. Isl. Med. Assoc., Jan.-Feb., 1921.

The reason why both cases were diagnosed as scurvy are:

- (1) The marvelous response to antiscorbutic treatment.
- (2) The presence of the "White line" in the X-ray plate which is a diagnostic sign of scurvy.

(3) The absence of fever in the first case in spite of the presence of pain and swelling in the joints.

The presence of fever in the second case may have been due to the associated bronchitis from which the patient was suffering on admission. But with the improvement of cough and fever, two days after admission, the temperature came down to normal, although there was no apparent improvement in the swellings.

The absence of hemorrhage in the gums in both cases can be explained by the absence of teeth. Both were below the age for the normal appearance of teeth.

Syphilitic Backache. J. V. Klauder, Arch. Derm. and Syphil., June, 1921.

Syphilitic backache is classified as a symptom of syphilitic involvement of the spinal cord, lumbar muscles and vertebræ. In the majority of instances, it is a symptom of spinal cord syphilis.

Syphilitic backache, a symptom of syphilis of the spinal cord, is meningeal in origin and due to irritation of the posterior sensory roots. This involvement may be acute, subacute or chronic, and may be present from the exanthematous period of the disease until many years later. The symptom backache is a part of the meningeal syndrome. These symptoms in general are essentially the same as those in other forms of meningitis: pain, which may exist between the shoulders or in the back, paresthesias, painful sensations and acute attacks of girdle pain which radiate anteriorly around the lateral part of the chest. Hyperesthesia is sometimes present, and the tendon and skin reflexes are increased. In addition, there are symptoms of motor irritation. Backache, stiffness and tiredness are the chief complaints of the patient. Clinically, in addition to these neurologic abnormalities, there is rigidity of the back, combined with localized tenderness on percussion of the vertebral column. Other objective evidences of neurosyphilis are usually present, since an isolated involvement of the spinal cord is exceptional.

The usual spinal fluid findings in this condition are given.

Case histories illustrating this type of syphilitic backache are presented.

A plea is made for a thorough history and clinical examination of every syphilitic in order that treatment may be administered in the meningeal stage of neurosyphilis rather than in the parenchymatous stage.

Backache Due to Syphilis of the Lumbar Muscles: The backache which is sometimes present in acute secondary syphilis is placed under this heading, although it is a toxic expression of the acute spirochetemia rather than syphilitic myositis. Syphilis of the muscles is discussed and various clinical types are presented.

Backache Due to Syphilis of the Vertebrae: A syphilitic involvement of the vertebrae is usually seen in the cervical rather than in the lumbar region. A brief review of the literature of syphilis of the vertebrae is given.

Syphilis is more likely to affect the spinous and transverse processes than the bodies of the vertebrae. The pathology of this condition is given. "Cold abscess" formation, which is usually present in tuberculosis, is considerably less likely to be encountered in syphilis.

In the symptomatology of this process there is no characteristic symptom which serves to distinguish it from other pathologic conditions of the spine. A secondary involvement of the spinal cord and its membranes is less likely to occur in syphilis than in tuberculosis.

The Differential Diagnosis of Syphilis of the Vertebrae: Syphilis may activate latent tuberculosis. This possibility must be considered in the presence of a pathologic involvement of the vertebrae in a syphilitic. The therapeutic test in these cases is not conclusive since tuberculous lesions in a syphilitic are improved after antisyphilitic treatment. A case history is given in which the necrosis of the lumbar vertebrae was probably tuberculous rather than syphilitic.

Backache may also be caused by a synovitis of the spinal joints. This involvement is the commonest lesion in syphilis of the spine. The syndrome of the process is this: Deformity, when present, is seen in a prolongation of the dorsal curve into

the dorsolumbar region, where normally a concavity exists, or a flattening. There is a localized stiffness, at first due to spasm, and later to adhesions. Hypotonicity of the ligaments and muscles of the sacro-iliac joints and hips is a predominating symptom.

Referred Pain and Pain by Extension in Visceral Disease.
W. H. Foreman, West. Med. Times, May, 1921.

There is an intimate relation existing between somatic and visceral structures through spinal and sympathetic nerves, mediation occurring in the cord, the reflex being in either direction.

The great mass of stimuli, and especially visceral stimuli, are never adequate to reach consciousness, and are only concerned in unconscious reflex influence.

The nerve synapses constitute a natural barrier between visceral and somatic structures and the conscious mind, this is more evident in visceral structures.

This natural barrier of inhibition is broken down in organic or functional disease of the viscera or nerve centers by increasing the strength of the stimuli or lowering the threshold of nerve resistance.

Reflexes occur over the parasympathetic system in the same manner as over the sympathetic and spinal systems. The reflexes are here over the same system and over the fifth nerve.

Inflammation in somatic structures by extension from visceral disease is definitely localized over spinal sensory nerves.

Vomiting. G. M. Niles, Amer. Phys., June, 1921.

Certain general lines may be laid down as of great importance in the accurate diagnosis of the cause of vomiting. There should be considered its relation to food, if any, and at what interval after a meal it occurs; whether preceded or not by pain; whether or not attended by definite nausea. The absence of nausea is of significance, for nausea is usually present in vomiting due to trouble in the alimentary tract and visceral organs, while it is not infrequently absent in diseases of the brain.

Inspection of the vomited matter often affords helpful information. Alcohol and certain poisons, such as carbolic acid and prussic acid, give out a characteristic odor, while a decided fecal odor generally tells its story. Blood may be present, either dark or bright red, or of a coffee-ground appearance. Slight streaks following severe vomiting or retching are generally due to the rupture of small blood vessels in the esophagus or pharynx, and do not usually deserve the alarm in the patient's mind that its sight elicits. In pertussis, blood is often mixed with mucus from the respiratory passages, and the contents of the stomach are violently ejected during the paroxysms. The condition of the vomited food is also worthy of attention, for the presence of substances, as raisins or seeds, taken perhaps many hours or days previously, would mean motor insufficiency of the stomach, either with or without pyloric obstruction. Shreds of meat vomited in an unaltered condition some hours after being ingested, indicate deficient protein digestion.

The reaction is worth noting, for following corrosive poisoning this may be strongly acid or alkaline, according to the nature of the poison. If there is a medico-legal feature involved, the vomitus should be preserved for analysis. Quite often microscopical examination of vomited matter may show sarcinae, yeast cells, the Boas-Oppler bacilli, or characteristic cell elements from a malignant growth. Intestinal contents are sometimes mixed, and bile is a rather common content after severe or protracted vomiting.

The foregoing will in the main cover the causes of vomiting, and happy may be the troubled physician who can always decide accurately just how to differentiate and classify this distressing symptom, for in the vast majority of instances a proper understanding as to the underlying or direct etiology, will not only govern the therapy but will largely aid in a correct prognosis.

Anthrax in Animal (Horse) Hair. S. Dana Hubbard, JI. A. M. A., Dec. 18, 1920.

Primarily, anthrax is an animal disease, frequently transmitted to man, not in the sense that the animal is the host, but that the

animal is its victim, from which by accident man receives the infection. Naturally, then, the source of anthrax in man is most often looked for in the products of the animal—in hides, wool or hair. Anthrax is widespread, affecting cattle, sheep and horses most often, and less frequently men. We are informed that all herbivora are liable to anthrax, but that carnivora enjoy relative immunity. Domestic animals, cats, dogs and pigs often fall victims to anthrax, probably from their intimate contact with the soil or from eating infected meat. Experiments in the laboratory demonstrate that rabbits, mice and guinea-pigs are peculiarly susceptible to anthrax.

Anthrax in medical history is an ancient affair, and from the earliest times has been considered a scourge to both men and beasts. Today anthrax is being disseminated through a source but little suspected by the general public and especially by the medical profession. Brushes used in toilet and domestic use as well as hair cloth and hair braid, have recently in New York City caused a number of cases of this disease.

Ipecac Sensitization and Bronchial Asthma. M. Murray Peshkin, JI. A. M. A., Oct. 23, 1920.

We have a true anaphylactic bronchial asthma due to inhalation of powdered ipecac, engrafted on a recurrent seasonal bronchitis.

There were seven types of food with which there were positive cutaneous reactions having no bearing on the existing complaint.

This case demonstrates the importance of making inquiry into the occupation of asthmatics.

Epidemic Encephalitis. Irving H. Pardee, Med. Rec., Nov. 13, 1920.

Prognosis.—The tendency in the disease is toward chronicity, the majority of the cases extending over several weeks to months. A fatal termination may, however, occur within 24 hours or not until after eight or nine weeks. As the epidemic becomes more and more past history the chronic lesions are becoming a matter of greater concern to those of us who have given hopeful prog-

noses. Certain of the manifestations of the disease have a special tendency to become chronic. These are the Parkinsonian, psychotic, and a few of the oculomotor disturbances. The mild types are apt to have a short and uninterrupted convalescence, while the rapid and more severe types tend to relapse to chronicity. The prognosis for life in encephalitis is good. Recoveries occur in from 65 to 90 per cent of the cases, varying with different reports. The prognosis in children seems to be better than in adults, and one author, E. L. Hunt, notes that in cases with spinal fluid in which a cell count is very low or very high, the outlook is unfavorable, while intermediate counts of 40 to 60 offer a better prognosis.

Differential Diagnosis.—There are four diseases which epidemic encephalitis tends most to simulate, viz.: botulism, poliomyelitis, tuberculous meningitis, and brain tumor. The English observers in 1918 considered encephalitis to be an epidemic of botulism. In many characteristics, especially the ophthalmoplegia, they are similar, but we now are able to differentiate them. The absence of acute gastrointestinal disturbances is of importance in differentiation, also the absence of an epidemic.

Poliomyelitis differs from epidemic encephalitis because it occurs mostly in children and in the summer-time; flaccid palsies are rare in encephalitis, and the extreme acuteness of both the cerebral and spinal forms of poliomyelitis is seldom found in encephalitis.

We find differentiation from tuberculous meningitis often fraught with the greatest difficulty. The chronicity of tuberculous meningitis, the marked meningeal irritation, the increased tension of the spinal fluid, and lastly the presence of the tubercle bacillus will help us to a correct diagnosis; from the clinical aspect alone it is often impossible.

A certain few cases will in every particular simulate a brain tumor, as I have already mentioned, showing papillo-edema, vomiting, headache, and localizing signs. I well remember a patient who was seen in January by the best consultant in internal medicine and two leading neurologists of New York and whose case was diagnosed as one of frontal lobe tumor, in whom complete and permanent recovery occurred.

Cerebrospinal lues may simulate encephalitis. However, here the serology will easily clear the diagnosis.

Still other diseases which may more rarely confuse the differential diagnosis are typhoid fever, uremia, paralysis agitans, Sydenham's chorea, the delirium of acute infectious diseases, hysteria, and the various psychoses which it may simulate.

The Measurements of Intracranial Pressure Changes in an Epileptic and Its Experimental Variations. Franklin G. Ebaugh and Geo. B. Stevenson, Johns Hop. Hosp. Bull., Dec., 1920.

Intracranial pressure changes may be measured by the application of an inverted tambour to an area of bone defect. With this recording tambour we were able to observe changes in intracranial pressure, which roughly follow absolute pressure changes in the cerebro-spinal fluid.

Rhythmic changes in intracranial pressure of varying types have been recorded.

Epileptic attacks are associated with a rise in intracranial pressure and are unaccounted for by activities of the patient. A rise of blood pressure sometimes occurs with the rise of intracranial pressure during the attacks. The patient gives subjective complaints associated with these changes.

Petit mal attacks show typical kymographic tracings of pressure changes.

Intracranial pressure is lowered by the intravenous and oral administration of hypertonic solutions. The oral administration of 200 c. c. hypertonic Ringer's gives a transient fall of 20 mm. (H_2O) with a terminal rise of pressure. From 30 per cent hypertonic glucose given intravenously a prolonged fall of pressure averaging 20 mm. after a slight initial rise was found. These changes observed by our recording system represent far greater changes in the true intracranial pressure. Glucose is more ideal to use for therapeutic purposes.

The administration of hypotonic solutions (water) gives a constant increase of intracranial pressure.

These changes are adequately controlled by the use of isotonic solutions.

Glycosuria During Pregnancy. Roland S. Cron, J1. Lab. and Clin. Med., Dec., 1920.

A positive reaction with Fehling's solution during pregnancy does not necessarily indicate the existence of diabetes mellitus but is usually due to a lactosuria or alimentary glycosuria and rarely to renal diabetes.

Lactosuria is common during both pregnancy and the puerperium. It is entirely physiologic and must be differentiated from the various types of glycosuria.

A large number, 30 to 50 per cent, of pregnant women are less tolerant to glucose than non-pregnant individuals. They have no hyperglycemia and are not true diabetics.

Glycosuria may be due to a lowering of the renal threshold for sugar. Albuminuria and glycosuria may accompany one another or alternate without hyperglycemia.

Diabetes and albuminuria may accompany one another. This complication in pregnancy is an ominous one and calls for the immediate interruption of pregnancy.

Diabetes and syphilis may complicate pregnancy. The treatment indicated is both dietary and antiluetic.

Pregnancy may occur in diabetic women or diabetes may become manifest during pregnancy. Either is a serious complication. Many patients do perfectly well, but a considerable percentage die in coma or collapse or succumb to some intercurrent infection or die during successive pregnancies.

The fetuses of diabetics, leaving out of consideration abortions and premature deliveries, are stillborn or die within a few days following birth in about 50 per cent of the cases.

Fat is the most important factor in the production of acidosis. It should be reduced to a minimum or omitted entirely. Its only use is in bringing the caloric requirement of the patient up to normal.

If sugar appears to a slight degree in pregnant women it should be carefully watched and controlled by diet and, unless a carbohydrate equilibrium can be maintained, pregnancy should be terminated.

Certain Cultural Characteristics of the Gonococcus. Ernest O. Swartz, Alfred T. Shohl and David M. Davis, Johns Hop. Hosp. Bull., Dec., 1920.

The superior growth of gonococcus in closed systems, when part of the air or of the oxygen has been removed or replaced, is essentially due to the lowered oxygen tension, and not to moisture, change of reaction, or presence of CO_2 .

Moisture is, however, necessary to good growth.

A reduction in the oxygen tension of 10 per cent is sufficient to produce optimal growth.

The gonococcus will grow luxuriantly, if the oxygen tension is suitable and moisture and uncoagulated proteids are present, on media having an initial reaction anywhere between pH 6.6 and pH 8.0 inclusive.

In dextrose-containing media, the acid end-point for the gonococcus is pH 5.6.

Diaphragmatic Hernia. Joseph Hajek, Med. Rec., Feb. 26, 1921.

Symptoms.—These will often depend upon the length of time during which the hernia has formed, and the organs present in the dislocation. There may be none at all, or else the symptoms may be very indefinite, the patient suffering from mild attacks of indigestion, vague pains in the thorax for a long period, either until he dies from some intercurrent disease, or until the hernia strangulates. Dyspnea, as in our case, may be a prominent symptom; there may be attacks of coughing, with pain in the chest over the precordium, accompanied by dizziness and weakness. Hemoptysis may occur. Abdominal pain, singultus, or difficulty in swallowing, accompanied by vomiting, may also occur during distention. Constipation alternating with diarrhea is a frequent symptom. Alarming symptoms develop with great distention of the viscera, or strangulation, which, according to Vogel, takes place in about 15 per cent of cases.

Physical Signs.—These will depend upon the size of the hernia. None whatever may be found. The patient may show some deformity, as in this case. The affected side may present diminished excursion, Litten's phenomena may be absent and apex

impulse seen dislocated to the right. *Fremitus* is diminished or absent. On percussion, *tympany* is elicited, breath and voice sounds may be diminished, or entirely absent. There may be succussion, or rough gurgling or splashing sounds in the thorax. Heart dislocated. The abdominal signs may be those of tenderness or rigidity, in varying degree.

Differential Diagnosis.—Chest conditions, such as pneumothorax, hydro- or pyo-pneumothorax, sub-diaphragmatic abscess, must be excluded. This usually is not difficult, if an X-ray examination can be made.

Prognosis.—This should be very guarded, in view of the ever-impending danger of strangulation; it depends largely upon the size of the opening, the mode of life, and the occupation of the patient.

The Cause of So-called Idiopathic Hydrocephalus. Walter E. Dandy, *Johns Hop. Hosp. Bull.*, March, 1921.

The cerebrospinal fluid circulates in a closed vascular system. This is just as well defined as the vascular system for blood, lymph, bile or urine.

The ventricular system, in which fluid is produced but not absorbed, is lined with a high cubical and columnar epithelium; the subarachnoid space, in which the cerebrospinal fluid is absorbed, is lined with low mesothelial cells. Nearly all the cerebrospinal fluid is absorbed in the cerebral sulci.

Collateral circulation is almost precluded either in the ventricles or in the cisternæ. An obstruction in these spaces, therefore, results in a hydrocephalus, just as closure of a ureter results in a hydronephrosis. If the obstruction is situated in any part of the ventricles (usually the aqueduct of Sylvius or the foramina of Luschka and Magendie) the hydrocephalus is of the obstructive type; if it is situated in the cisternæ (or in the main branches of the cisternæ) it is of the communicating type.

That the cause of communicating hydrocephalus (the remnant of so-called idiopathic hydrocephalus) is an obstruction in the cisternæ is conclusively demonstrated in three ways. (a) Experimentally communicating hydrocephalus can be produced by

blocking the mesencephalic cisterna. (b) The obstruction can be graphically demonstrated in the experimental animal or at necropsy in the human by injecting a suspension of India ink into the spinal canal; the color stops abruptly at the obstruction. (c) In all living patients the obstruction can be clearly shown by cerebral pneumography after air has been injected into the spinal canal; the air also stops at the obstruction, and can be sharply outlined in the roentgenogram.

The obstruction in the subarachnoid space is most frequently located in the mesencephalic or pontine cisterna.

However, the obstruction need not necessarily be in the cisternæ; it may be in the large branches which carry the fluid from the cisterna chiasmatica and interpeduncularis to the cerebral sulci. Any number of these branches may be occluded. If all the main branches are obstructed, the hydrocephalus will be the same as if the occlusion were in the cisterna. If some of the branches remain unobstructed, the degree of hydrocephalus will be modified proportionately; a complete cure may even result because of the absorption which takes place in the remaining patent areas of the subarachnoid space.

Adhesions, which follow meningitis and occlude the cisternæ, cause the vast majority of cases of communicating hydrocephalus. They also cause many cases of obstructive hydrocephalus, by blocking the foramina of Luschka and Magendie. Adhesions give infallible proof of a preexisting meningitis. A history of meningitis may be easy, difficult or impossible to obtain. The post-meningitic occlusions have no relation to the severity of the attack and the number of adhesions but rather to the location of the adhesions.

In two cases the hydrocephalus appeared to be due to a congenital failure of the cisternæ or of its branches to develop. Tumors in the pons, medulla, or mid-brain also produce partial or complete obstruction of the subarachnoid space and therefore cause communicating hydrocephalus.

Pneumographic records are shown demonstrating the existence of a very early stage of communicating hydrocephalus, the cause of the hydrocephalus, the reason for its unusually tardy development, and for its spontaneous arrest.

Aural Aftermaths of the Influenza. Albert Bardes, Med. Rec., Nov. 13, 1920.

The vertigo that is often associated with internal ear trouble is very annoying and often dangerous. The sixth or static sense resides in the semi-circular canals of the internal ear and it controls the equilibrium. The least derangement of these tiny canals affects the balancing sense. Seasickness is caused by the agitation of the contents of the canals. The incoordination in drunkenness is due to the irritating effect of alcohol upon the tiny nerve filaments in the canals. Infants and deaf mutes seldom become seasick. In the former the sensitive mechanism in the canals is undeveloped. In the latter it is atrophied from disuse. The proper functioning of the organ of equilibrium is of great importance, especially to aviators, structural workers, and others engaged in hazardous undertakings that call for quick action and exact equilibrium. Many aviators have met with disaster by flying directly after an attack of the influenza.

Influenza and Hypophrenia. Karl A. Menninger, Jl. A. M. A., Oct. 16, 1920.

The awakened interest in the study of the effects of hypophrenia (feeble-mindedness), together with the advances made in neuropathology, have put us in a receptive attitude toward the theories of exophysical causation of feeble-mindedness, and have stimulated constructive research.

The pragmatic value of studying effects rather than causes was overlooked by the older writers, who, taking for the most part the standpoint that hypophrenics are "born, not made," persist in it inflexibly in spite of clinical evidence and statistics which would indicate the importance of the effects of infections and the possible infectious causes of feeble-mindedness.

Influenza as a type of acute infection, with known neurotoxic potency, gave opportunity for study of its effect in relation to hypophrenia in the recent epidemic.

Inquiries addressed to superintendents of state hospitals for the feeble-minded afforded seventeen replies, representing more than 16,000 patients, but were almost entirely barren of im-

portant results, owing in part possibly to the burden and pressure of duties incident to the care and alleviation of the physical disease.

This negative evidence is offset by data from the cases of our Boston series and from private practice, illustrating effects of influenza on hypophrenia.

The uncomplicated cases represent: (1) hypophrenia (feeble-mindedness) with aggravation of intellectual lack prominent after influenza; (2) hypophrenia with emotional sphere disturbances notably intensified after influenza; and (3) hypophrenia with volitional and conduct disorders conspicuously aggravated by influenza; to which may be added (4) a single instance of symptomatic improvement, in all spheres but notably that of intellect, following influenza.

The complicated cases represent: (5) hypophrenia with conspicuous neurologic manifestations after influenza; (6) hypophrenia with psychotic manifestations following influenza; and (7) hypophrenia with psychopathic manifestations prominent after influenza.

(These seven groups may be tersely summarized, using Southard's terminology, as hypophrenia with hypognosia, hypophrenia with dysthymia, hypophrenia with parabulia, hypophrenia with improvement, hypophrenia with encephalopathy, hypophrenia with psychosis, and hypophrenia with psychopathy. In each case it is understood that influenza was the apparent effector.)

Generic processes illustrated as to the rôle of the influenza are comparable to those observed in the study of the psychoses associated with influenza, namely, creation, precipitation, aggravation and amelioration.

The process of creation is very imperfectly illustrated by two cases, both open to question.

The process of precipitation is not illustrated at all; no cases were observed, although the possibility is not inconceivable.

The process of aggravation, however, was comparatively frequent, and is illustrated by the majority of the cases here cited.

Amelioration is illustrated by one case.

In this, then, the relation of influenza to hypophrenia differs

from that of influenza to the psychoses, since aggravation in the latter was the least frequently observed phenomenon, and in the case of hypophrenia the most frequently observed.

Conclusions:

(a) The usual effect of influenza on the brain is not the production or precipitation of hypophrenia, and if it ever produces hypophrenia it is probably by means of a more or less obvious encephalopathy.

(b) On the other hand, of those already manifesting mental lack, certainly a few are influenced adversely by influenza, and the symptoms of hypophrenia aggravated, an aggravation which may be predominantly in the intellectual sphere, in the emotional sphere or in the volitional sphere.

(c) Psychoses of an indeterminate type are occasionally precipitated by influenza in the feeble-minded, even as in normal persons.

(d) At least occasionally, though rarely, the effect of influenza on hypophrenia may be symptomatic amelioration.

Iodoform Poisoning. Morris Grossman, *Med. Rec.*, Nov. 6, 1920.

In this patient, rigidity of the neck and cranial nerve palsies were the only features lacking. The Kernig sign appeared 24 hours after the first iodoform packing was introduced. There was still some evidence of it 14 days after the packing had been removed. There were associated with it frontal headache and a hyperesthesia so marked that the patient suffered agonizing pains with the slightest movement of the body. Active delirium did not develop, but the patient at times was confused and bordering on the point of active hallucinations and delusions. These periods were followed by dullness, apathy, and marked irritability. High fever was present and the pulse rate was correspondingly increased. The tongue was dry and had a brownish coating. Striking pallor and emaciation were present early, and there was marked weakness with hypotonia of the muscles. The deep reflexes were diminished almost to the point of disappearance—the knee-jerks more than the ankle-jerks. The patient was nauseated and refused all food. Vomiting did not occur until

four days after the removal of the gauze. A discrete papular eruption appeared.

Surgical Jaundice. Royale H. Fowler, Med. Rec., Nov. 6, 1920.

However certain the diagnosis of malignancy, cases of obstructive jaundice should be explored, especially in view of the mimicry of chronic pancreatitis.

Chronic pancreatitis may masquerade even on the operating table.

A Volumetric Method for the Determination of Lactose by Alkaline Potassium Permanganate. Felipe T. Adriano, Philip. Jl. Science, Aug., 1920.

The attempt to apply the alkaline potassium permanganate method to the determination of lactose in milk has met with success. This method has advantages over the older methods in rapidity and accuracy. Lactose determinations run with the new method give consistently lower results than with the Soxhlet method.

The results obtained by the polariscopic method are very unreliable and cannot be used for accurate work, especially in the analysis of canned milk. Where a high degree of accuracy in the results is required the Quisumbing or Soxhlet method should be given preference.

Protein Shock Reaction in Leprosy. Emanuel M. Josephson, Med. Rec., Oct. 9, 1920.

This case indicates that the protein shock reaction has some possibilities in the diagnosis of latent leprosy. The reaction, however, bears the very unpleasant feature of creating an exacerbation of the disease. But where there are no other methods of diagnosis and when the importance of diagnosis outweighs the risk to the individual the reaction might be put to the test. Experimentally its use is certainly pardonable in checking up cases of suspected cures where release of the patient from the leprosarium is advocated, and in preventing spread of the disease by immigration from the endemic zones.

Mesenteric Lymphadenitis. Abraham O. Wilensky, Med. Rec., Nov. 6, 1920.

Cases are constantly being met in which the lesion is centered in the lymph nodes of the mesentery in the general region of the ileocolic junction. The clinical picture of the illness is identical with that of other acute conditions in the lower right abdominal quadrant; these others are much more frequent than the adenopathies and with the purpose of attempting to differentiate and describe the latter this communication is made.

In some of the cases the pathological picture includes a uniform discrete enlargement of the mesenteric glands which, on microscopical examination, show a simple hyperplasia. Clinically the affection has an acute onset with chill, or chilliness, and fever ranging to 102° or 103° F.; with generalized abdominal symptoms rapidly localizing themselves in the right iliac fossa; and with moderate symptoms of intestinal disturbance. The clinical picture is very like that of an acute appendicitis, and in practically all of the cases which I have seen this error has been made in the diagnosis. The character of the physical findings is such as frequently accompany an advanced form of appendical inflammation, and the objective symptoms include distention, rigidity, and well marked tenderness at McBurney's point.

Lymphosarcoma, Lymphatic Leukæmia, Leukosarcoma, Hodgkin's Disease. L. T. Webster, Johns Hop. Hosp. Bull., Dec., 1920.

It seems probable that lymphosarcoma, lymphatic leukæmia, and leukosarcoma, are different manifestations of the same disease.

The term "lymphadenosis, leukæmic or aleukæmic" would express this idea and simplify the classification until a definite etiological agent is found.

This disease is not a neoplasm but a direct response on the part of lymphocytes to a chemotactic influence exerted by the disease-causing agent. The presence of this substance in any tissue or organ produces there a local accumulation of lymphoid cells.

Diagnosis and prognosis of this disease in its early stage are difficult from the microscopical examination of a single gland because of its resemblance to certain types of benign lymphadenitis.

Evidence of amoeboid activity, on the part of the lymphocytes, is indicative of a rapid fatal course.

Hodgkin's disease, a distinct entity, may be diagnosed and accurately prognosed from the microscopical examination of a single gland.

The Mendelianism of Migraine. J. Arthur Buchanan, Med. Rec., Nov. 13, 1920.

Migraine is a distinct type of disease, and should be easily identified after the appearance of the symptoms. The disease is an expression of the Mendelian phenomenon with a ratio of 3.08 to 1; there is no medication known that will alter its course; it is a distinct part of the patient's economy, and it will have no harmful influence on longevity.

Recovery of a Needle from Tendon of Flexor Longus Hallucis. W. Howard Barber, Med. Rec., Oct. 30, 1920.

The instructive factors in this experience are:

The progression of the needle within the tendinous fibers of the long flexor of the great toe.

The sudden appearance of pain ten years after entry.

The value of stereoscopic pictures for preoperative study and the importance of anteroposterior and lateral views for localization at the time of operation.

The importance of searching aponeuroses and tendons in the long-standing cases of foreign bodies in the extremities.

Movable Kidney with Unilateral Nephritis. Joseph M. Cadwallader and Alexander A. Brown, Jl. A. M. A., Nov. 6, 1920.

These two cases seem to be rather instructive, serving as they do, to remind us that, while a mere movable kidney may constitute a negligible condition, it may sometimes be the seat of

serious organic mischief amenable to proper treatment; that not every neurotic with a movable kidney is to be passed by or treated merely as such; and, above all else, that every patient with a movable kidney and nephritic urine must be subjected to uretral catheterization, and each renal function and excretion be separately investigated. Chronic bilateral nephritis means Bright's disease, with its grave prognosis; chronic unilateral nephritis, from this particular cause, is curable and, hence, a vitally different matter.

Some Difficulties in the Diagnosis of Osteosarcoma. Robert B. Cofield, JI. A. M. A., Nov. 6, 1920.

While the Roentgenogram is one of the most important adjuncts in differentiating bone diseases, it is often impossible to make a diagnosis, by the Roentgen ray alone, in the early or atypical cases of osteosarcoma. It may necessitate serial examinations as well as a careful study of the full clinical data, and occasionally an exploratory incision to be positive of the true nature of the disease.

The Roentgen-ray picture of central sarcoma of the long bones is one of irregular destruction, with little or no tendency toward new bone formation until the periosteum is involved or broken through. The lesion is usually confined to one area, although multiple lesions are occasionally observed. Medullary sarcoma in the beginning may be confused with myeloma, cyst and osteomyelitis. Since they frequently have the same point of origin and are more or less destructive in character, it may require repeated Roentgen-ray examinations to differentiate these conditions. In myeloma, the globular outline of the tumor is maintained during its expansion; the swelling shows little or no tendency to extend along the shaft or break through its capsule and invade the surrounding tissues and, when completely removed, does not recur or produce metastasis; myeloma was formerly classified as a nonmalignant giant cell sarcoma, and is probably the same condition as described by Barrie under the title "chronic hemorrhagic osteomyelitis." In cysts, the cell wall is usually sharply outlined and clearly defined, and shows no tendency toward rapid expansion and invasion.

In suppurative osteomyelitis the Roentgen-ray findings are often not definite enough in the beginning to make a diagnosis; but as the disease progresses, the inflammatory redness of the skin appearing over the rapidly growing tumor would suggest a pus infection rather than malignancy.

Sarcoma involving the spine may portray an expansile tumor of the vertebrae simulating a circumscribed abscess when viewed in the anteroposterior position; and at the same time a lateral view may reveal the crushing of the vertebral bodies, as seen in Pott's disease. In other cases the extensive destruction of the vertebrae, accompanied by more or less hyperplasia of bone, may resemble syphilitic spondylitis. The severe pain, which is not relieved by fixation, the rapid invasion of the surrounding tissues and the early involvement of the spinal cord, with a resulting paraplegia, strongly suggest malignancy.

The Roentgen-ray picture of periosteal sarcoma is more distinctive in character, the new bone formation showing a trabeculation at right angles with the shaft of the bone and presenting a smoky appearance. Early in its course it may be mistaken for osteoma, osteochondroma and myositis ossificans. Osteoma and exostoses are readily recognized, as they are conical or pedunculated, and their sharp outline is continuous with the bone from which they arise. Osteochondroma, when growing from the epiphysis laterally, gives a rather typical appearance; when of central origin it is more confusing. Either form may at any time take on the characteristics of malignancy, indicated by rapid growth and destruction of the enveloping capsule.

Myositis ossificans and ossifying hematoma, the latter occurring in subperiosteal hemorrhage from injury or scurvy, show a definite bony border due to the deposit of calcium salts, and the bone is laid down parallel to the shaft rather than perpendicular, as seen in periosteal sarcoma.

The diagnosis is most difficult when a rapidly growing periosteal sarcoma invades the adjacent joint; as the disease spreads to the joint capsule and periarticular tissues, the joint takes on a fusiform shape and symptoms simulating a tuberculous, syphilitic or hemophilic lesion, the latter particularly when blood is aspirated from the joint.

Carcinoma of the osseous system is rarely confused with sarcoma, since carcinoma is of metastatic origin and always secondary to cancer elsewhere in the body; when occurring in bone, it usually attacks the cancellous tissue first and shows areas of regeneration along with the destructive process. The author has seen a pathologic fracture of the femur heal under the influence of mechanical fixation only to break down again after the support was removed.

Surgery of the Prostate. John F. X. Jones, N. Y. Med. J., Oct. 2, 1920.

The mortality of prostatectomy in the hands of the average general surgeon has been in the neighborhood of fifty per cent. The reduction of this mortality will depend upon:

Intimate association of the internist, physiologist and the laboratory man with the surgeon in the study of the case.

Thorough examination of the patient by one skilled in physical diagnosis—particular stress being laid upon the lungs, heart, arteries, kidneys and nervous system.

Complete investigation of the blood and urine by a competent laboratory man. If it gives the slightest promise of reducing the death rate, no test, functional or otherwise, should be considered by the surgeon too fantastic to merit trial.

Willingness and ability on the part of the surgeon to adapt his methods to the special requirements of each case—irrespective of the fact that he has rejoiced in the performance of a certain technic heretofore.

Subluxation of the Head of the Radius. Jacob Grossman, Med. Rec., Dec. 11, 1920.

Subluxation of the head of the radius is a fairly common condition and is often overlooked. It is often diagnosed as sprain of the shoulder and wrist or fracture of the forearm.

It occurs only in children, generally between the ages of eight months and three years.

The mode of production and the subsequent picture, namely

raising or dragging the patient by gripping the wrists and the apparent flaccid paralysis, are characteristic of this condition.

It is often called "traumatic palsy" of the upper extremity.

Extreme forcible supination is all the treatment required to overcome the subluxation. After care is not necessary.

As relapses may occur parents should be warned of the risk of dragging or lifting their children by gripping the wrists.

Roentgenology in Pulmonary Diseases. Herbert M. Decker, JI. Iowa State Med. Soc., Jan. 15, 1921.

The X-ray examination is one of the greatest aids to a diagnosis of the very early lesions. A good plate can now be made in a surprisingly short time. With the double-coated film and two intensifying screens an exposure can be made as fast as the current can be broken, some operators regularly making these exposures in 1/40 of a second. Speed is a great factor when working with children under ten years of age, as it is impossible to keep them quiet. They are usually nervous with strangers and particularly so when taken to a strange place and stripped. Any gross movement of the ribs and lung tissue will fog the outlines and make the plate unreadable and utterly useless.

The position which has given best results is the prone position. The patient is placed perfectly straight and flat with the arms out at right angles to the long axis. The exposure is taken at full inspiration so that all areas of density are surrounded by as much air as can be taken in. It is obvious that better differentiation can be secured when the lung is full of air than when it is emptied and partially collapsed.

Failure of one side to expand can be noted and the excursion of the diaphragm is easily seen. Adhesions of the pleura with obliteration of the various angles cannot be determined when the chest is contracted unless they are very extensive, in which case they can be located by physical diagnostic methods without much trouble.

Increased density of the hilus is a very early finding in this disease, and fibrosed or calcareous areas are found fairly early. However, these easily seen dense areas are usually fairly well

protected by fibrous tissue or calcareous deposit and are not usually causing much disturbance.

The areas of slightly increased density are of prime importance, as they show inflammation in an early stage. This density may vary from a mere smoky area to a distinct density, or may show a beading due to the development of many concrete areas of inflammatory thickening.

These early manifestations are not easily recognized unless the observer is well trained in interpretation. The normal markings must be thoroughly understood before the abnormal can be appreciated. It is rare that the surgeon, internist or general practitioner has the time, opportunity or desire to become expert in plate interpretation, and he should not attempt to interpret plates without considerable training.

Symptomatology of Spinal Cord Tumors. Isador Abrahamson and Hyman Climenko, JI. A. M. A., Oct. 23, 1920.

Pain is present from the beginning in all soft tumors, but only in those intramedullary tumors in which the tumor reaches the posterior roots or surface of the cord. Pain in intramedullary tumors is, therefore, usually a late phenomenon, or may not occur at all if posterior roots or the meninges are not affected.

In the vast majority of cases, the symptoms develop more rapidly in extramedullary sort tumors.

Tract sensory signs and symptoms are more intense and more widespread in intramedullary tumors.

Trophic changes are greater in intramedullary tumors.

Intramedullary tumors show less rectal and vesical signs.

Xanthochromia is rare in intramedullary tumors. It appears only when the tumor reaches the surface of the cord.

Deep spinal column tenderness indicates rather an extramedullary tumor.

Further Studies on the Specificity of Streptococci. Ruth Tunnicliff, JI. A. M. A., Nov. 13, 1920.

The serum of a sheep immunized with a hemolytic streptococcus from an acute case of erysipelas was found to contain

opsonins and agglutinins for the hemolytic streptococci of this disease but not for hemolytic streptococci from other sources, such as scarlet fever, wounds, otitis media, influenza and puerperal sepsis. The results of absorption tests also suggest that the hemolytic streptococci from erysipelas form a distinct group, erysipelas streptococci removing the opsonins for these cocci, while absorption with a scarlatinal hemolytic streptococcus had no such effect.

It would appear from these experiments that the hemolytic streptococci in erysipelas belong to a distinct immunologic group, as determined by opsonification and agglutination.

The Value of the Cultural Method in the Diagnosis of Chancroid. Oscar Teague and Olin Deibert, J1. Urol., Dec., 1920.

It is shown that by a simple cultural procedure the diagnosis of chancroid can be made with almost as much ease and almost as much certainty as the diagnosis of diphtheria by culture.

The methods employed are not entirely new, but it is here demonstrated for the first time that this cultural procedure is a practical method for the diagnosis of chancroid.

The method need not interfere in any way with the usual procedures for the diagnosis of syphilis nor with the treatment of the chancroid.

A Spinal Sign in Gastric Crises of Tabes. William Browning, Med. Rec., Oct. 30, 1920.

It is relevant to ask what is the point of origin of gastric crises? Although the systemic or luetic condition is the underlying etiologic factor, the immediate cause is more likely some intermediary process.

Whether the vomiting is of central origin, cerebral in type, a view largely held by Germans, or is due (Mills and others) to disease of the vagus, or is analogous to the pain and other crises of tabes and hence perhaps radicular in origin, does not seem to be determined.

Clinically there are several reasons for considering the "cen-

tral" theory inadequate: (a) The initial symptom in some attacks is severe pain at the spine, preceding any evidence of disturbed gastric function, and in most cases there is at least attendant pain of spinal type, indicating that to be the primary or starting point. (b) Often these crises are accompanied by the occurrence or increase of pain elsewhere in the body. This suggests a flushing of the system with toxins or influences, and not merely a local process. And similarly in pain-crises elsewhere about the body, there is often evidence of a more general influence. (c) If these attacks are analogous (as claimed and as seems plausible) to the pain crises of tabes, then they must be due to radicular or at any rate extracranial cause. (d) Furthermore, if this were a sequel, it might be expected to develop in other cases of persistent vomiting, whereas in fact it has so far proven to be a distinguishing mark. (e) The clinical facts given in this paper speak in the same sense.

While the material at hand may not give a full explanation of the way the vomiting is brought about, this much can be said,—that the evidence is sufficient not only to cast doubt on the completeness of the old or "central" theory of its origin, but to raise a question if it is applicable at all. It is another of those instances where the physiological and the clinical do not at first sight jibe. Physiologically the "central" interpretation may seem both necessary and sufficient. But no explanation is satisfactory until it accounts fully for the clinical facts.

This may parallel the idea, when emetics were first used hypodermically, that they acted centrally. Later this had to be modified somewhat when it was found that the agent had been excreted by the stomach.

As a corresponding herpes does not or not often attend a gastric crisis, and as the spinal tenderness so soon subsides, we cannot presume the existence of a full-fledged neuritis.

As irritative processes about the stomach and regions adjacent to the tender spot beside the spine may induce emesis, it is possible that such a result is produced along ordinary functional lines.

A convenient view is that both results are sequels of a widespread systemic influence (chemical, toxic, infective, nervous,

or what not), including the spinal involvement as an integral part of the crisis complex.

The most certain conclusion is that these attacks are not in any strict sense "central" in origin, as has heretofore been so largely assumed.

Microscopic Study of Pulps from Infected Teeth. A. T. Henrici and Th. B. Hartzell, *Jl. of Dental Research*, Dec., 1920.

Active inflammation has been found in fourteen pulps from forty-one infected teeth, or 37 per cent—ample confirmation of the opinion, previously arrived at from bacteriological studies, that the pulp may be (a) invaded by microorganisms long before it is actually exposed by caries, and may be (b) repeatedly injured long before it actually undergoes necrosis.

An Unusual Case of Lateral Sinus Thrombosis. Joseph Friedman, *Med. Rec.*, Dec. 4, 1920.

The infection through the sclerotic mastoid to the sinus took place with unusually great rapidity. The ear symptoms from the date of onset to the operation were only of ten days' duration.

The more pronounced symptoms indicating such a severe involvement were entirely lacking. Nothing that could be detected at the time of examination pointed to the possibility of such a serious complication. It should be remembered that this was an ambulatory case of sinus thrombosis.

The actual demonstration of pus in the sinus.

The absence of bleeding from the jugular bulb after removing all clots from the sigmoid below the knee to the bulb, showed conclusively that our thrombosis must also have extended at least into the inferior petrosal sinus. Nevertheless, nothing developed as a consequence.

Organo-Therapy in Thyroid and Allied Disorders. John Rogers, *Med. Rec.*, Oct. 16, 1920.

The simplest explanation of the so-called thyroid neuroses (and indeed of all the visceral neuroses, especially those of the

stomach and intestines) involves fatigue and the probable effects of this influence upon the functions of the drive and check nerve terminals. At the outset, fatigue should impair the activity of both mechanisms. Later, with its continuation or increase, the preponderance of the deficiency might be manifested in an increasing failure of the drive, which in the case of thyroid disorders would explain the symptoms of myxedema; or in an increasing failure of the sympathetic or check nerve terminals which would leave the thyroid free from inhibition. The result should be hyperthyroidism. This sequence is more in accord with the observed facts than any primary and vicious over-activity of the gland or of the vagus system. Fatigue, however, is not the only influence known to cause failure in nerve terminals. Poisons or the toxins of bacterial infection produce similar effects. But, clinically, fatigue seems to be one of the most common causes of these neuroses, and for therapeutic purpose is always of great importance.

The Anatomy, Physiology, and Pathology of the Tonsillar Structures in Relation to Cryptogenic Infections. George B. Wood, *Med. Rec.*, Oct. 9, 1920.

In acute tonsillitis, the tonsil is infected in the following manner: The infecting organism gains access to the crypt, producing there, by its growth, sufficient irritation to cause a distinct reaction in the epithelium. This reaction is manifest by a proliferation of the epithelial cells, as shown by the increase of desquamation and of penetration of the basal cells into the tonsil parenchyma and the presence of mitotic figures in the epithelial cells. If the infecting organism is not of sufficient virulence, this proliferation of the epithelium may prevent invasion, and we have as the result a simple parenchymatous tonsillitis. When the toxic action, however, is more severe, certain portions of the epithelium become necrotic and this process may progress until the parenchyma of the tonsil is opened to the infecting bacteria. The bacteria then passes with the current of the interfollicular tissue toward the lymphatics, or they may become arrested in the germinating follicles where, through their development,

abscess formation takes place in the follicle which later ruptures into a neighboring crypt, producing a purulent discharge at the mouth of the crypt which is so characteristic of suppurative tonsillitis. The organisms that reach the efferent lymph vessels are carried to the regionary lymph nodes producing the lymph adenitis which is associated with all severe cases of tonsillitis.

Trench Foot—Etiology, Pathology, Bichloride Treatment.
John F. Van Paing, Wash. Med. Times, Feb., 1921.

As to life the prognosis in most cases is favorable.

As to the loss of toes or limb it should be guarded.

Under ordinary expectant treatment of elevation, cotton or wool dressing, drying lotions or dusting powders, most cases will loose the affected toe or foot.

In the dry types of the disease involving one joint only the general health is not greatly disturbed, and nature usually performs the amputation.

In the acute infective type with septicemia, high temperature and delirium, if the disease is extending rapidly up the limb, amputation is a life saving measure, and if not immediately performed these cases die of the toxic condition produced.

Abdominal Pain in Diseases of the Kidney and Ureter.
Arthur B. Cecil, Jl. A. M. A., Nov. 6, 1920.

A review of these cases shows that the most practical conclusions as to the distribution of abdominal pain in diseases of the kidney and ureter can be best arrived at by a study of those diseases which are most constantly characterized by pain, namely, stone and hydronephrosis. It will be noted from Group 1, stone in the kidney and ureter, that the distribution of the pain was purely abdominal in 28 per cent. of the cases, and that in 20 per cent. of the cases it was so misleading as to lead to abdominal operations.

The figures from the tables on hydronephrosis are even more striking. Excluding the six cases of hydronephrosis which are associated with stone, it will be noted that abdominal operations

had been performed in 30 per cent. of the remaining cases, for the relief of pain which was subsequently demonstrated to have been of renal origin. The symptomatology of hydronephrosis is often obscure and misleading, and it is in this group of cases that the urine is so often practically normal.

It is obviously impracticable to carry out urologic examinations as a routine. There are, however, certain well defined indications, and while abdominal pain is not one of them, it is by no means a contraindication, and becomes a definite indication when the urine shows abnormalities. In obscure cases of abdominal pain, pyelographic studies should be more frequently made.

Cancer of the Uterus in Young Women. Gordon Gibson, JI. Lab. and Clin. Med., Dec., 1920.

Cancer of the cervix occurs with sufficient frequency in young women to make it imperative that the condition be kept in mind.

Epithelioma is the type generally found.

The growth is much more rapid than in older individuals and only when seen in the first three months can a radical operation be done.

The extension is especially rapid when the parametrium becomes involved and death follows comparatively soon.

THE ARCHIVES OF DIAGNOSIS

A QUARTERLY JOURNAL DEVOTED TO THE STUDY
AND THE PROGRESS OF DIAGNOSIS AND PROGNOSIS

(Founded by Heinrich Stern, M.D., LL.D., F.A.C.P.)

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Special Articles

CLINICAL ENDOCRINOLOGY

Notes on the Glands of Internal Secretion in a General Résumé
from the Clinical Aspect

By GEORGE A. MOLEEN, M.D., Denver, Colorado

When Thomas Addison, in 1855, demonstrated the pathologico-anatomical findings in a sickness which has since borne his name and referred the disease to the destruction of the suprarenal glands, he blazed a trail into a realm of such vital interest as was probably well beyond the conception of himself or his contemporaries.

The gland structures were known to anatomists for a long time, but wholly obscure as to their function. The evidence of this statement is better appreciated when one reflects that it was some thirty years after this discovery when it was recognized that the dependence of cretinism and myxedema rested with alteration or disease of the thyroid gland.

Physiological research aided by pathological investigation has led to the elucidation of the function of these glands in health and paved the way for the study of the diseases to which they are liable as well as to the conditions which are, in whole or part, directly or indirectly, attributable to disorder of their secretions.

Through the removal of individual glands or by the observation of cases in which they have been destroyed by disease, we have been enlightened by the results of the withdrawal of their influence

and thus to distinguish the individual functions of parts of these structures evidencing a compound nature of their function in some instances as in the pituitary.

As the internal secretions are more clearly studied the wide field of their activities is becoming more fully realized.

In addition to the control of metabolism, we are learning that by virtue of that control, the endocrine glands exert an immense influence upon growth and development, and that this influence is exercised at times in the direction of stimulation and at others in that of restraint or inhibition.

In order that the various activities of an animal organism may act efficiently as a whole, it is necessary that those of one part be correlated with those of another. This correlation is brought about through the nervous system, or through the action of substances produced in one part of the body upon another and carried to that part by the blood. Physiologic processes concerned in the adjustment of the organism to quickly changing conditions of its environment require that the control through the nervous system be especially developed for prompt action. The chemical substances which accomplish this correlation are the products of the endocrine glands, discharged into the blood and hence are often called internal secretions.

Some of these internal secretions are merely the by-products of tissue change and are only incidentally used for the purpose of bringing about control between different parts of the body. Among such substances are carbon dioxide and urea; the former of which may act on the respiratory or other nerve centers as in the case of muscular exertion, or as a result of the attenuation of the atmosphere at high elevations; and the latter may stimulate an increased activity of the kidneys.

These together with the internal glandular secretions which are more directly concerned with the control of metabolic function are designated hormones, notwithstanding the objection to the use of this special term in so wide a sense.

A hormone may be the sole product of one gland as in the thyroid, parathyroid, pituitary and adrenal glands; or the secondary product of glands which have other functions as those produced by the pancreas and the generative glands.

According to whether they exert an exciting or depressing influence on the metabolic processes, they have been subdivided into two classes. Examples of the exciting class are epinephrine secreted by the adrenal glands which excites the terminations of the sympathetic nervous system, and pituitrin which excites plain muscular fiber. The depressing or inhibiting class is represented by the substance contained in extract of the placenta, which tends to inhibit or prevent the secretion of milk.

The chemical substances were first suspected to be in the nature of enzymes, which was disproved by their indestructibility by heat in the presence of water. That they are much simpler chemical compounds and represented by a comparatively small molecule is evidenced by their dializability, *i.e.*, they pass through animal membrane as do other crystalloids of chemical nature. This fact justifies the hope that it may be possible to prepare them or their salts in crystalline form as has already been accomplished in at least one of them—adrenaline.

We may then define a hormone as a specific organic substance formed by the cells of one organ, and secreted into the circulating fluid and carried to other organs where it produces effects similar to the actions of drugs.

Our knowledge at the present time of the specific secretion of individual glands is quite primitive, and this has been explained to be the result of a backwardness of the physiologic-chemical knowledge in this field. Indeed, the above definition has been challenged, since according to this definition, as Von Krehl has pointed out, every tissue in the animal body really yields an internal secretion. That this assumes a chemical rather than a nervous correlation in individual organs may, however, be emphasized, notwithstanding the fact that to many specific ductless glandular secretions must be ascribed quite a definite exciting influence on the nervous system.

To quote Falta (*Ductless Glandular Disease*, 2nd Ed., p. 5; 1916): "There is a series of organs the proper function of which we must regard as the production of especially important hormones, which are provided with powerful physiological characteristics. It is a common property of these organs that they separate out their specific secretion directly into the blood path. We therefore call

them ductless glands, and their collective total the ductless glandular system."

Much experimentation has been undertaken to throw light upon the reciprocal action which was stimulated by the numerous clinical experiences and pathological anatomical findings that show that diseases very frequently affect several ductless glands simultaneously and lead not only to a concomitant increase of function, but to a simultaneous diminution of function, or to a combination of increase in some and of a diminution in others.

General—The relationships between the glands of internal secretion and clinical manifestations are well summarized by N. Pende (XII Cong. de Med. Interne. Rome, 1912) under five headings: (1) The relation of the endocrine glands with the development of the organism and the formation of the tissues; (2) their relation to the organic metabolism; (3) their connection with the trophic function and the excitability of the vegetative or sympathetic nervous system; (4) their relationship with immunity (or the resistance of the organism to infections or intoxications); (5) the influence in determining individual constitutions and temperaments.

According to the same author it is the endocrine apparatus in its entirety which governs the normal rhythm or organic evolution and the harmony of individual forms, the rhythm and balance of the changes—or in a word "the normal nutritional tone of the organism."

In order to effect this wide influence it is contended that two groups of hormones exist which are antagonistic to each other. These groups are opposed from three points of view, namely, in the influence of organic tissue change, that of development and that on the vegetative nervous system.

One group assumes an assimilating and the other a disassimilating function; to the latter group belong hormones of the thyroid, hypophysis, the genital glands and adrenaline.

To the antagonists of this group, which moderate metabolism and stimulate the visceral nervous system belong especially those antagonistic hormones of adrenaline—these are present in the pancreas, thymus, lymphoid tissues and parathyroids; some autotrophic hormones of the thyroid and hypophysis are included because of the opposing influence of adrenaline.

It was Langley who differentiated in the vegetative system what he termed the autonomic from the sympathetic.

This autonomic system consists of a cephalic and a sacral portion; the former process from the midbrain and bulb and includes the oculo-motor nerve, the pneumogastric and the chorda tympani; the latter is made up of the pelvic nerves.

It will be seen, therefore, that the sympathetic portion dilates the pupil, causes the eye-ball to protrude, accelerates the heart action, inhibits the movements of the intestine, dilates the sphincter ani, and produces glycosuria and polyuria. On the other hand, the autonomic system contracts the pupil, relaxes the zonule of Zinn, slows the heart action, contracts the muscles of the intestine, increases the gastric and hepatic secretions.

Eppinger and Hess (Deutsch. Arch. f. Klin. Med. LXVIII, p. 231, 1909) have endeavored to demonstrate this in man by the use of pharmaco-dynamic tests by means of injections of adrenaline, of pilocarpine and of atropine. They have applied the name of vagotonics to individuals in whom the autonomic activities predominate; and those who show a prominence of sympathetic manifestations were designed sympathicotomics.

To illustrate, *adrenaline* dilates the pupil, contracts the blood vessels, accelerates the heart action, increases arterial tension, produces polyuria, glycosuria and reflex excitability. *Pilocarpine* incites salivation, sweating, blushing, increase of intestinal peristalsis, hypersecretion of digestive fluids and intestinal juice. *Atropine* dilates the pupil, stops secretion and sometimes accelerates the heart. *Eserine* (or physostigmine) is a vago-excitant and consequently slows the pulse, raises pressure and contracts the intestine.

Therefore adrenaline is spoken of as exciting the sympathetic, while pilocarpine and eserine stimulate the autonomic, and atropine causes a paralysis of the latter.

The oculo-cardiac reflex, of Aschner, permits the study of the respective activities of the sympathetic and the pneumogastric.

In the normal recumbent individual, light pressure on the eye-balls for thirty seconds causes, after a few seconds, slowing of the pulse, lowering of arterial tension, slowing of respiration and sometimes a sense of nausea.

The positive reflex (slowing of pulse in excess of twelve beats

per minute) is evidence of vagotonia; it is negative when there is no reaction or one of less than fourteen beats per minute and expresses an inversion, or sympathicotonia.

The relationship of the internal secretions and the nervous system opens an immense field for study—in fact too vast to do more than generalize for fear of tincturing or diluting the interest with vague though essential details.

The subject has been studied and reviewed at considerable length by Laignel-Lavastine (Rev. Med. No. 10-11-12, p. 776, et. seq. 1915) from the *morphologic* point of view, as between certain glands and the nervous system particularly between the sympathetic and the chromaffine system.

Physiologically, experimentation has demonstrated that stimulation of portions of the nervous system—central and peripheral—may modify the internal secretions, while on the other hand, variations in the secretions or injection of their hormones in recognized and isolated cases may modify the nervous function, particularly the excitability of the vegetative system with election of either the autonomic or the sympathetic system.

Pathologically, less is known than generally supposed. Endocrine-nervous relationship should only be admitted after close scrutiny of the facts. It may be stated, however, that nervous disturbances occur through alteration of the internal secretions and conversely that internal secretory disturbances result from alterations in the nervous system.

Practically, endocrinology carries an important aid to neurology, especially in the functional types and particularly in the clinical study of common symptoms, such as asthenia, headache, insomnia, anxiety, perspiration, constipation, arterial hypertension, and obesity.

The endocrine-sympathetic syndromes (exophthalmic goitre, Addison's disease, scleroderma, diabetes mellitus, etc.) the psychoneuroses, temperaments and characters are better understood in view of the idea of the reciprocal influences of the glands of internal secretion and the nervous system.

It is seen therefore that endocrine symptoms may depend not only on a lesion of a corresponding gland or of its regulating nervous mechanism, but upon a disturbance of one or the other,

and infectious or toxic in origin. The glandular trouble may be not only quantitative, but qualitative; it may depend not only on one gland but upon many, and in the latter case with the predominance of one or of several of them.

It becomes evident then that endocrine syndromes may present many variations when we assume the divisions of the vegetative systems, and in view of the relationship of excitation and inhibition of the diverse glands, one upon the other. We see especially that two groups stand out quite prominently, one formed especially of the suprarenals, the thyroid and the pituitary which excite the sympathetic; and the other formed especially of the pancreas and parathyroids which excite the autonomic.

If reference is now made to the symptoms occurring in disorder of individual glands, the thyroid, parathyroid, thymus, suprarenals, pancreas, pituitary, pineal, ovary, testicle and prostate may be considered as presenting suggestive evidences, and the following are drawn largely from the review of Laignel-Lavastine.

Thyroid insufficiency may result in arrest of development, dwarfism, infiltration of the skin, mental torpor, dull ideation, defective memory, apathy, laziness, sluggishness, somnolence; slow, monotonous, hoarse, nasal voice; small, rapid and irregular pulse, occasionally with hypertension; constipation, scanty urine, subnormal temperature, chilliness, headaches, slight knee jerks; no alimentary glycosuria; sometimes epilepsy—all of which may be a part of a myxedematous picture.

Hyperfunction gives rise to the Basedow or Grave's syndrome, which includes chiefly tachycardia, tremor, exophthalmos, weakness, arrhythmia with Von Graefe's, Stellwag's and Moebius' signs. These may be associated with anxiety, pulsation of the arteries of the neck, lachrymation, facial paresis, transient attacks of tetany, ocular frontal headaches, amenorrhea, emaciation, agitation, emotional instability, volubility, insomnia, sometimes anxiety neurosis, obsessions, anxious melancholia, cyclic insanity, depression, mania, melancholia, confusion and epilepsy.

There have been attributed to the thyroidal insufficiency, independent from myxedema, infantilism, obesity, Dercum's disease, pseudo-lipomatosis, alopecia, premature grayness, migraine and asthma, among many minor manifestations.

Parathyroids: Tetany with disturbance in the calcium metabolism. Tonic intermittent spasms of the extremities, without disturbance of consciousness, tingling and stiffness of the fingers, Chvostek's sign, increased galvanic excitability of nerves.

Parkinson's syndrome has been frequently observed, especially in early years, and caused this gland to be suspected as a contributory factor. This syndrome includes trembling, muscular rigidity, propulsion, rheumatoid pains, weakness, suppressed voice, cerebral retardation, psychic depression, vertigoes, etc.

Thymus: Myasthenia gravis or asthenic bulbar paralysis marked by muscular weakness without atrophy—rapidity of fatigue with the so-called myasthenic reaction of Jolly, ptosis, external ophthalmoplegia, changing, transitory paralysis, more especially of the neck muscles, palate and tongue.

Thymoprivic idiocy—congenital absence of thymus gland.

Thymus: The function of the thymus in the growing period of life has long been suspected, especially because of its diminishing volume and final atrophy as growth proceeds and becomes stationary. There is good reason to attribute to its secretion an influence on the general activity or vivacity, and especially on the calcification of the bony skeleton. Interesting in this connection was the experimental work of Fiore and Franchetti (So. Sperimentale LXVIII, fas. 2; p. 237, 1914) who observed that when young rabbits and rats were injected with serum of adults of the same species, in which the thymus was involuted, during a period of time, a regression of the thymus, clinically and histologically, took place, ossification of the skeleton was disturbed, development arrested and vivacity or activity lost. On the other hand, if very young dogs or rabbits were injected with the serum of animals of the same species, but in which the thymus was in full activity, their own thymus increased in size, the skeletal ossification progressed, development accelerated and the animals showed an excess of vivacity.

Suprarenals: Addison's syndrome, asthenia, arterial hypotension, pigmentation, tetany, myoclonia, convulsions, delirium, mental confusion, coma and sudden death.

A genital-suprarenal syndrome has been described, including anomalies, associated with sexual development or retardation.

In connection with the *pancreas* there should be mentioned diabetes mellitus and its concomitants and sequels.

Deficiency of the pancreas may be responsible for many duodenal and intestinal disorders, as well as such system states as proceed from acidosis. I have observed intractable dysentery with foul discharges containing unchanged fats and fatty acids, with weakness, exhaustion, depression and acidosis with marked acid reaction to the saliva—which could only be impressed by pancreatin. Failure of the lipolytic ferments permits the setting free of fatty acids (oleic, stearic, palmitic, margaric, butyric, isovaleric, etc.) which frequently displace the weaker radicles such as uric and carbamic, and these are insufficiently eliminated owing to their relative insolubility. Similarly, deficiency in the amylolytic and glycolytic enzymes are evidenced in lactic and carbonic acid gas—the latter resulting in flatulence and gaseous distension.

Pituitary Gland or Hypophysis: Of the various gland structures included in the endocrine system, none have held the interest and attention so thoroughly as the pituitary. This is easily understood when one contemplates the variety of striking abnormalities which have been shown to be directly attributable to this unpretentious little structure nestling in the normal state within the bony concavity in the base of the skull and known as the sella turcica.

In the developing child, this structure has, by reason of abnormalities in its secretion, determined gigantism or infantilism, adiposity or a diminished amount of fat, sexual inversion, retardation or precocity—while in the adult such alterations as acromegaly are the result. Alterations in the carbo-hydrate metabolism, polydipsia, polyuria (diabetes insipidus), hypertrichosis, early or delayed ossification of epiphyseal cartilages are among the clinical phenomena associated with changes in its secretion.

In a previous presentation (Moleen, Geo. A., *Dispituitarism*, *Archiv. of Diag.*, April, 1917), I took occasion to report several pre-adolescent types of dyspituitarism in which were included a case of twenty-six years who bore the appearance of a boy of twelve, with sexual infantilism, absence of facial as well as pudendal hair, without adiposity; with this was contrasted a girl of nine who appeared of the development of fifteen or sixteen—she had a good development of hair, large breasts and considerable supply of sub-

cuticular fat; sex characteristics precocious, including a menstrual flow for several months previously, of regular and three-day type.

The clinical symptoms vary in accordance with the portion of the pituitary body involved or through a combination of the alterations, such as an increase of the secretion of the anterior lobe with a diminution of the posterior and its converse, while the intermediate lobe or isthmus may alone give rise to symptoms. All influences of over or under secretion are modified by the stage of development attained by the individual at the time of the secretory disturbance.

As an unusual case, showing the extreme results of even the isthmus, allow me to refer to a case of infundibular tumor studied by Newmark (*Arch. Int. Med.*, Vol. 19, p. 550, 1917) which occurred in a boy of fourteen. The tumor had destroyed the neurohypophysis and most of the pars intermedia. The patient was described as "a weazen, alert, and agile little boy" who looked not more than ten. The most prominent feature was the diabetes insipidus in which the polydipsia and polyuria were very marked. The boy frequently drank two gallons of water during the night, and a bucket of four-gallon capacity was placed in his bedroom as an urinal and was regularly found half full in the morning. There was no limit to the amount of water procurable to slake his thirst, but he craved stronger drink—beer, wine, whisky and alcohol were obtained in spite of beatings because of his craving. He had been known to consume four quarts and a pint of beer without evidencing the slightest effect and reported to school and performed his tasks as well as he usually did. This continued unabated until his sudden death from hemorrhage into the tumor.

In the discussion of the case, Newmark quotes a case of Trousseau's who showed an amazing endurance for alcohol. This patient, a youth of twenty, on several occasions took on a wager twenty liters of wine without producing any effect on the nervous system. Strangely enough, says Trousseau, "this man who could drink twenty liters of wine and a liter of alcohol without being intoxicated, experienced violent effects from one centigram of belladonna" tried in effort to overcome his thirst. Recourse to strychnine was met by the same intolerance to drugs.

Pituitary: The manifestations of the pituitary are subject to so

many variations that only the briefest reference can be made at this time.

Froehlich's syndrome—adipose-genital dystrophy with adiposity, arrest of development or retrogression of the genital glands, organs and the secondary characteristics. In this the posterior lobe is chiefly concerned.

Loraine type of dystrophy, infantilism with arrest of development, including sexual infantilism, failure of ossification, etc. Here the deficiency is for the most part confined to the anterior lobe.

Acromegaly, marked regional or general hypertrophy—not congenital. An increased secretion of the anterior lobe and, in a sense, the converse of the preceding.

Gigantism or acromegaly in individuals in whom the epiphyseal cartilages are not yet ossified, impotence, amenorrhea, effeminacy, etc.

The syndrome of dystrophy of the intermediate lobe has been conceded to be characterized by polydipsia and polyuria.

Pineal Gland: Abnormal increase in size and growth; genital and sexual prematurity of development with secondary sexual characteristics, hypertrichosis, precocious exaggerated mentality.

The name pineal adiposity was used by Marburg in cases of diffuse obesity.

The choroid plexus which is pretty generally recognized as the source of the cerebrospinal fluid may through over-action lead to ventricular distension and secondarily to clouded mental states and idiocy. The knowledge of its relation to the endocrine system is as yet largely speculative.

The sex organs, namely the ovary, testes and the prostate, have so large a literature as to preclude more than mention of a few interesting associations.

Infantilism of ovarian origin.

Acquired or premenstrual life, or that occurring with the involutionary period or menopause. In the latter there are the symptoms of a reactional hyperthyroidism such as hot flashes, sweats, hyper-tension, paroxysmal tachycardia, palpitations and anxiety.

Hyperovaria.

Lack of development of the testes may result in infantilism.

Acquired testicular insufficiency in which several varieties of

results have been described by Rebattu and Gravier (Nouv. Iconographie de la Salpêtrière, p. 257, 1913).

1. Sterile.
2. Eunuchoid gigantism—late appearance of the secretion—prolonged infancy.
3. Eunuchoidism by castration—gigantism and youthful aspect.
4. Revertive infantilism—an asexual state—delayed disorder in the adult.
5. A variety characterized by short legs, large head, abundance of hair, heavy moustaches, thinness, persistence of youth, etc.

Prostatic insufficiency—diminished potency, asthenia, neurasthenia, sometimes suicide. Prostatic hypertrophy—increased arterial tension, bradycardia, cerebral hemorrhage, genital excitement.

Polyglandular Syndromes: Disorders of internal secretions frequently concern several glands and present syndromes in which the characteristics of one or more members may stand out more clearly; thus we have those in which (a) there is a predominance of the thyroid; (b) of the ovary; (c) of the pituitary; (d) of the suprarenals more particularly.

In the first case there occur, for examples, types of Basedowian, myxedematous and those acromegalias which are associated with myxedematous on the one hand, or with exophthalmic goitre evidences on the other.

Likewise, similar combinations occur with the other groups. Especially worthy of mention is the thyroidal reaction to the ovarian insufficiency, in which tachycardia, palpitation, sweats, nervous irritability, vertiges, scanty urination, tremors, anxiety, etc., may appear.

I may briefly refer to a clinical example of polyglandular disorder—pituitary-adrenal—thymus type, with disturbance of calcium metabolism:

F. R. H. A girl of 17, born in Denver, with a family history of negative significance from which she was a third born. Measles and mumps, only, of the exanthems. Tonsillectomy at 12 and appendectomy at 15; the former followed by hemorrhage. Suffered much from "growing pains." Menstruation at 11; regular for 2 or 3 years, but very irregular since, with intervals varying from 2 weeks to 2 months and usually 7 days in duration. During the

last year there have been several subcuticular hemorrhages—e.g., in January, while standing and holding to a hand-rail, the left wrist “swelled and became bluish”; three such hemorrhages since. There has been some diplopia; improved by glasses.

The patient appears as a girl of medium development, 5 ft., 5 in., weighing 110 lbs., coarse features and hair, prognathism and thickened lips. Teeth are soft and under-calcified. The face lacks symmetry—ears are definitely lobulated, but isomorphous and symmetrically inserted; no facial hair nor moustache at this time (previous to treatment this was distinct). Thyroidal volume, deficient. Pupillary distance, narrow (60 mm.). Pulse, 80. Blood pressure, 100/75. Hemoglobin, 85%. Laboratory reports (July 15, 1920—by Dr. Pardee). Roentgenogram shows a small enclosed pituitary fossa.

Wassermann, negative. Blood CO_2 59.8%. Blood sugar, .057% (57 mgm. per 100 cc.); coagulation time, 14 min., 30 sec.; R.b.c., 5,648,000; hemoglobin, 95%; W.b.c., 5,700; polymorphonuclear, 61%; morphology, normal.

Under treatment of pituitary, adrenal and thyroid with calcium—the case presented besides clinical improvement the following laboratory findings:

Hemoglobin, 92%; R.b.c., 4,421,000 (altitude); W.b.c., 10,100; polymorphonuclear, 59%; coagulation time, 3 min.; blood sugar, .072%; blood CO_2 51.2%.

Here we see clearly the pituitary evidences in defective development, masculine characteristic tendencies, etc.; the adrenal in the low blood pressure and vascular relaxation; the thymus or probably the para-thyroid in the faulty calcium metabolism traceable since childhood.

The following case observed quite recently and therefore without complete laboratory study, but striking in the combination of polyglandular disorder, including hyperpituitarism (with Fröhlich or adipose characteristics), hypothyroidism—probably compensatory, and secondary ovarian insufficiency.

Notes on Case II: Mrs. L. L.; aged 27 years; housewife; and a native of Roumania who came to Colorado 15 years ago in health. Father and mother living and well and family as well as personal history is negative, except that the menstrual history which began

at 15 was never regular—occurring every 2 or 3 months and of scanty three-day type. Married at 17; three pregnancies followed by three normal births and a very scant catamenial flow since. Chief cause for complaint is headaches over the eyes; tires easily; hot flashes without apparent cause. Physically she presents a stature of 5 ft., 3½ in., and weighs 133 lbs., with liberal distribution of subcuticular fat, but more especially about the neck, breasts and trunk. The fingers are characteristically tapered, the skin is soft with flabbiness and quite free from hair, although the eyebrows are quite well developed. The teeth show deficient calcification and considerable attempt at repair. The thyroid gland is much diminished in volume. Blood pressure is 135/85; hemoglobin, 70% (Dare).

As an interesting case of polyglandular disturbance, involving hyperthyroidism which was viewed as a Basedow disease for some time for this reason, and who has been under observation for 13 years—the following is of especial interest:

Case III: Mrs. E. K. was first observed in 1907, when 34 years of age. Born in Ohio. In Colorado since early infancy. Parents are in good health and family as well as personal history is otherwise irrelevant, except for scarlet fever followed by rheumatism. Menstruation at 13; four pregnancies; 2 births; 2 miscarriages; menorrhagia relieved by curettage.

Chief complaints are nervousness, ease of excitement, palpitation and fatigue, or lack of endurance.

Briefly, there is evident at this time a slight loss of weight; tawniness and anemic appearance of skin; marked, regular, fine, rapid tremor of hands; tachycardia, 100-135; restlessness; slight prominence of eyes with lagging of the upper lids on downward rotation.

In 1914, following an acute follicular tonsillitis, nausea, vomiting and dysentery appeared and continued to the point of exhaustion and extreme prostration—the skin became darker in tint, muscular weakness became profound. Urinalysis showed a trace of albumen, some pus corpuscles, but no casts. Feces revealed no abnormalities. Blood examination: R.b.c., 3,700,000; W.b.c., 21,000; hemoglobin, 85%; differential: polymorphonuclear, 85%;

small lymphocytes, 10%; large mononuclears, 2%; eosinophiles, 3%; no nucleated nor abnormal red cells.

In spite of the apparent gravity of the clinical picture, the physical examination revealed no visceral disturbance other than a slightly enlarged and palpable spleen.

Large doses of bismuth failed to more than feebly impress the nausea and the dysentery, and while opium relieved the distress this was transient and brief.

The condition had persisted for ten days, when it became apparent that the hyperthyroid picture was being replaced by that of failure of the adrenals, in view of which suprarenal substance was instituted. Within 24 hours the condition showed frank amelioration, the dysentery checked, nausea completely relieved and within a week the patient was up and about; the suprarenal substance has been continued since, except for a brief period it was thought by the patient that it might be omitted—the symptoms recurred within a few days and prompt relief followed the resumption, which has been continued up to the present time. The tremor is almost absent; the tawnyess of the skin remains; the patient is active; the blood pressure is increased at the present time (230 mm.), so as to warrant a diminution in the amount; pulse rate is from 70 to 80.

A case which was a prototype of the foregoing with even a more spectacular recovery persisted in the suprarenal treatment until Christian Science interdicted; she succumbed to a rapid Addisonian syndrome within ten days.

Mental States: Many authors have held the internal secretions under suspicion as the primary cause of mental changes, for example, Parhon and Odobesco (L'Encephale, IX, No. 6, p. 489, 1914) have described a paranoid state occurring in women associated with effective and somatic phenomena which aroused the idea of glandular modifications. The psychoglandular syndrome was characterized by erascibility with unsystematized ideas of persecution combined with somatic symptoms of ovarian disturbance, irregular menstruation or amenorrhea, congestion of the face, heat flashes, thyroidal changes with intensively positive Abderhalten reaction for the thyroid. A negative reaction for ovary and cerebral cortex is taken to exclude these as primarily pathologic. Clin-

ically, these cases proceed to a dementia. The question, "Is this a form of dementia precox?" is considered in the negative, in spite of this disease.

I know I must have exceeded the time allotted and can only touch this field as I have the others in a brief and disconnected way, but if I have indicated the wide latitude of this interesting study, the chief object has been satisfied.

In conclusion, I feel that I cannot close more fittingly, than to use the final paragraph of Laignel-Lavastine, "In practice the great aid that endocrinology brings to the study of neurology and especially functional neurology manifests itself particularly in the clinical study of

1. Ordinary symptoms, such as asthenia, headaches, insomnia, anxiety, sweats, constipation, arterial hypertension and obesity.
2. Endocrino—sympathetic syndromes, such as Basedow's syndrome, Addison's syndrome, scleroderma and diabetes mellitus.
3. Psycho-neuroses.
4. Temperaments.
5. Characters.

Endocrino-diagnosis of temperaments, particularly through tests and sympathico-vagotonic examinations, in penetrating the familial heredity, will allow us to use prophylactic measures in combating diatheses and in combating certain of the factors, the humoral and the neurovegetative factors for instance, which are formative of character."

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FISH AS MOSQUITO DESTROYERS *

An Account of the Part They Played in the Control of Yellow
Fever at Guayaquil, Ecuador

By MICHAEL EDWARD CONNOR, M.D.†

Guayaquil, Ecuador, one of the oldest cities of the Western Hemisphere, has at no time been noted for the salubrity of its climate. Don Antonio de Ulloa, who visited it toward the middle of the eighteenth century, reported that even then fevers were very common there and, knowing as we do to-day that certain insects are responsible for the transmission of certain diseases, his further comment has especial interest. "Though all these hot and moist countries swarm with an infinite variety of volatile insects," writes the Spaniard, "yet the inhabitants are nowhere so greatly incommoded as at Guayaquil." Writing as recently as 1912, the Right Hon. James Bryce refers to Guayaquil as the pesthouse of South America, the last stronghold on the continent (if one excepts the banks of the Amazon) of the deadly yellow fever.

To-day, less than a decade after the denunciation just cited was written, Guayaquil is a city redeemed from the yellow fever peril, which, first recorded in that community in 1740, maintained its hold until May, 1919, when the last case was officially reported. All Ecuador, and not merely Guayaquil, is enabled to take a forward stride as the result of this accomplishment, for the isolation imposed upon the chief port of the country has been an important factor in retarding the development of the wonderful resources of the republic.

How was this improvement in sanitation brought about? The

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† At about the time that Dr. Connor was engaged in yellow fever control, the Rockefeller Foundation, under whose auspices his work was conducted, also became interested in the role played by fish in malaria control. The latter demonstration was conducted by Dr. H. H. Howard (Director for the West Indies of the International Health Board) in Hinds County, Mississippi, from 1918 to 1920. A report of this work is found in Document No. 7486 of the International Health Board, entitled "Use of Top Minnow (*Gambusia Affinis*) as an Agent in Mosquito Control."—The Editor.

reader familiar with the achievements of our government in controlling disease-carrying mosquitoes at Panama and elsewhere will not unnaturally assume that fumigation, oiling, screening, and the inspection of mosquito-producing containers were the methods resorted to. In Guayaquil, however, partial reliance was placed upon an animal ally of man—a fish so indefatigable in the destruction of the larvæ of the dangerous *Stegomyia* mosquito that through its agency the breeding of this insect in small containers has been reduced from 100 per cent to less than 2 per cent, a figure not far from complete extermination.

The yellow fever mosquito breeds by preference in fresh-water containers in or near human habitations, and is rarely ever found in pools of water on the surface of the ground and never in the fields or swamps. It is a domestic mosquito and clings to inhabited buildings with tenacity. It does not fly any considerable distance and avoids direct sunlight. The female deposits between one hundred and one hundred fifty eggs at a time. These eggs are deposited on the surface of the water, always in a barrel, tank, tin can, flower vase, broken bottle, or some other receptacle holding fresh water. From each egg there comes a wriggler or larva, which after several molts finally reaches the adult stage and, if it be a female, starts at once to secure a victim from whom to suck blood. Should this victim be ill with yellow fever in the early stages, the mosquito will take up in the blood germs of the disease, which after a period of about twelve days in its body will be injected into the next victim that the mosquito bites.

The water supply of Guayaquil provides for only forty liters per capita per diem, and this quantity of water is delivered to the people during two hours each day. It is, therefore, absolutely necessary to store water in some sort of container if the household expects to have sufficient to meet its daily needs. The containers used in Guayaquil can be divided into two classes—tanks and other receptacles. Tanks are to be found in the better equipped homes and are permanent fixtures. They have a capacity of from one hundred to five hundred gallons and are provided with valves for the intaking and outletting of water. They are located against a wall or partition, high up to gain head pressure. There are more

than 7,000 tanks in service at Guayaquil. Other receptacles comprise barrels, oil tins, large earthenware bowls, etc.; the last census made by sanitary inspectors showed more than 30,000 "other receptacles" in actual use.

The problem at Guayaquil was how to conserve the water for a population of 100,000 and at the same time render the containers mosquito-proof, and to accomplish this within as short a time as possible because speed meant a great saving in human lives. The first thought would be to destroy the mosquito breeding places, by doing away with containers. This could be achieved by installing a modern water system carrying an abundance of water which would be available to the people at any hour of the day or night, but this work could not be consummated under two years from the date of its inception and in the meanwhile yellow fever would be killing hundreds. The government of Ecuador has contracted for a modern system of potable water, and the work is being rushed to completion. The problem of controlling yellow fever while awaiting the installation of the water system reduced itself to mosquito-proofing all necessary water containers in the city.

The device used in Cuba and Panama, namely, covering the mouth of the barrel with wire screening and placing a spigot in the lower part from which water might be drawn, was a practical measure in ordinary times and was used in Guayaquil for a short time. But because of the difficulty of securing materials in Ecuador, it was thought best to try the method of straining the water through muslin to separate the mosquito larvæ. This required, however, a great deal of time, and there was always the possibility of contaminating the water through a typhoid carrier in the sanitary squad.

A small fish, commonly known as the top minnow, had been introduced into Ecuador some years before the present campaign started. This fish is found in streams and will consume mosquito larvæ. We experimented with top minnows in fresh water containers but found them unsatisfactory for ordinary receptacles, such as barrels, etc. They would not eat the mosquito larvæ in these containers if other food material was available, and as the water in Guayaquil is delivered to the people untreated, it has with it considerable débris. On this sediment the top minnows lived con-

tentedly. In a glass jar in the laboratory they would readily eat all mosquito larvæ given them, but when placed in a barrel or container, they were less dependent on this food. Again, the top minnow is not a hardy fish, and the concussion produced by dipping a pail into the water barrel was sufficient shock to kill it. The hope nevertheless persisted that a fish with capacity for consuming mosquito larvæ and yet possessing sufficient hardness to resist rough treatment might be found in the streams near Guayaquil.

The next fish experimented with is known locally as the *huijas*, a variety of perch. This fish is a voracious eater of mosquito larvæ and resists well the rough handling of long trips in pails and cans. With this fish our problem appeared to be solved, but after a few weeks' trial the *huijas* revealed itself as extremely restless and as unwilling to accommodate itself to the small containers. It also exhibited remarkable jumping qualities, rising sometimes three or four feet to free itself from the container. The *huijas* was abandoned for the *chata*, a sardine. This fish possessed all the good qualities of the *huijas* and none of its defects. It had the additional characteristic of spending the greater part of its time on the surface of the water, but when anyone approached the container, it would swim to the bottom and remain there until the cause of its fright was removed. The *chatas* are not plentiful and are, therefore, more expensive to use than the *chalaco*, the next fish tried, which was finally adopted as the most satisfactory for consuming mosquito larvæ and mosquito eggs in small containers. The net cost per fish to the Yellow Fever Service is one-half cent, and this will be reduced as soon as the hatcheries already established come to production.

The method of using the fish for the purpose of mosquito-proofing water containers is simple in the extreme. Contracts are made with local fishermen to deliver so many thousand *chalcacos* in good condition at our *bodegas*, where they are placed in a specially prepared well, the conditions of which approximate those of the stream from which the fish have been taken. After a few days the fish are removed to a second well, the water of which is the same as that used by the city. No food, other than that which the fish find in the water, is given them. Sanitary inspectors notify the *bodegas*

a day previous to the distribution as to the approximate number of fish they will require for their districts that day. The fish are then taken from the wells and placed in tins or pails and delivered to the inspectors. Instructions have been given to each inspector that every fresh-water container in his district is to be supplied with one fish, regardless of the presence or absence of mosquito larvæ in the container at that time. The public is encouraged, personally, by notices in the newspaper, and by the inspectors themselves, to exercise reasonable care in protecting the fish. The public of Guayaquil has responded in a whole-hearted manner to the requests of the Yellow Fever Service, and many families have in their possession at this time the identical fish which was given them to mosquito-proof their water container nearly eighteen months ago.

More than 30,000 water receptacles have in this way been purged of mosquito larvæ in a relatively short time and at a minimum of expense. With the continued use of fish it is believed that the yellow fever mosquito can be reduced to such small numbers that, should a few cases of the disease be introduced into the community, it would not spread.

BOOK REVIEW

Textbook of Pastoral and Agricultural Botany—for the Study of Injurious and Useful Plants of Country and Farm. By John W. Harshberger, Ph.D. With 121 Illustrations. P. Blakiston's Sons & Co., Philadelphia, Pa.

This useful book contains *in nucleo* the laboratory and research work of the author as presented by him to the veterinary students of the University of Pennsylvania during a period of twenty-five years. To students of plant life, to agriculturalists, stock raisers, veterinarians and to the amateur gardener the volume will prove useful and of interest. It is concise, well illustrated and pithy. Its shape will also recommend itself to the peruser. The city dweller will find it of convenient size and weight to take along as a *vade mecum* on his rambles over the wooded hills and through the shady dales of the suburban districts.

ABSTRACTS, REVIEWS, SUMMARIES AND CONCLUSIONS FROM THE CURRENT LITERATURE

The Relation Between the Adrenal Cortex and Sexual Development. By Knud H. Krabbe, N. Y. Med. Jl., July 6, 1921.

From the above considerations we draw the following conclusions: The development of pubic hair and beards in little girls with adrenal cortex tumors cannot be regarded as a special sign of precocious puberty but must be considered as a natural link in hypertrichosis. This hypertrichosis and the development of a large clitoris and transformation of the voice in little girls are only to be considered as a virilism, analogous to the virilism in adult women suffering from adrenal cortex tumors and the so-called fetal virilism (female pseudohermaphroditism) in females with adrenal hyperplasia. Only in boys and in a single case of adrenal tumor in a girl aged ten years has there been found true *pubertas præcox*. This theory has already been expressed partially by Glynn and Leiner.

Many authors conclude from these facts that a special connection exists between the normal function of the adrenal cortex and the sexual organs, that a hormone from the adrenal cortex has a special influence in producing the secondary sexual characteristics. This theory does not seem to have sufficient basis; the presence of virilism in girls and women with adrenal cortex tumors, especially, cannot be explained by the suggestion that the adrenal cortex should have any influence on the normal sexual development in females.

A study of the interrelations in early fetal life will give an explanation which seems more plausible. Several investigations have shown that the ovary in its early stages is hermaphroditic. The outer cortical portion is ovarian, the inner medullary portion, testicular. This testicular part is at that stage connected with the adrenal cortex, which develops next to the genital gland from the mesentelium. In cases where adrenal cortex tumors have caused virilism, it seems most probable that the tumors have not been developed from ordinary adrenal cortex cells, but

from such fetal testicular cells which have been absorbed by the adrenal cortex and developed to a sort of false adrenal cortex.

Pernicious Anemia. By Samuel A. Levine and William S. Ladd, Bull. Johns Hopk. Hosp., Aug., 1921.

Persistent absence of free HCl is practically a constant finding in cases of pernicious anemia. In this series it was noted in 99 per cent of the cases. It is often present years before the blood shows any of the typical changes, and possibly always antedates them. It is, therefore, of considerable importance in diagnosis.

There seems to be a distinct familial factor in pernicious anemia.

The incidence of this disease in English speaking people and Scandinavians was greater than in immigrants from Russia, Italy and Eastern Europe.

Syphilis played no significant rôle in this series.

Eosinophilia, even of a very marked degree, was a frequent finding.

The proportion of males to females was as 2 to 3. The average age of both sexes was about 51 years.

Studies in Aneurysm. By B. Lucke and M. H. Rea, Jl. A. M. A., Sept. 17, 1921.

This paper contains a statistical analysis of 321 aneurysms of the heart and its valves, the aorta and the aortic branches.

In 12,000 postmortem examinations at the Philadelphia General Hospital and the Hospital of the University of Pennsylvania, 321 "intracorporeal" aneurysms occurred in 268, or 2.2 per cent, of patients examined postmortem.

Comparison of statistics shows that aneurysms are more frequent in the United States and Great Britain than in the Teutonic countries.

The aorta is more often involved; the various aortic branches are relatively rarely the seat of aneurysms.

The most frequent age period for aortic aneurysm is the fourth and fifth decades.

Aneurysm occurs at an earlier age in the negro than in the Caucasian race.

Aneurysm occurs about four times more frequently in males than in females.

Aneurysm is relatively more common in the negro than in the Caucasian.

In fifty-three patients (about 20 per cent), multiple aneurysms were found.

The clinical diagnosis was made in 43 per cent.

Report of a Case of Hysterical Aphagia. By Anthony A. Rutz, N. Y. Med. Jl., June 1, 1921.

The special features in this case are:

The association of the habitus enteropticus and the neuro-pathic state.

The marked functional disturbance produced by suggestion in such an individual.

The complete and persistent character of the aphagia.

The marked tolerance established to the invasion of foreign matter into the lungs.

The sudden termination of the case through suggestion ending in the same manner as it began.

These combined form a clinical picture of unusual interest and rarity.

Mesenteric Lymphadenitis Simulating Appendicitis. By J. W. Struthers, Edinb. Med. Jl., July, 1921.

An inflammatory reaction occurs in enlarged mesenteric glands and the overlying peritoneum, the enlargement being usually but not always tuberculous, which gives rise to symptoms closely resembling appendicitis.

While the cause of the reaction cannot be precisely determined, it may be due to exacerbation of the tuberculous infection with periadenitis, to the invasion of tuberculous glands by other organisms, i.e., to the onset of a mixed infection, or to the occurrence of a transient adenitis similar to that seen in other parts of the body in association with surface infections.

Which explanation is the correct one the author has been unable to determine. Microscopic examination of glands removed for the purpose has not cleared the matter up. From the evidence as it has presented itself the author is inclined to think that most cases are probably due to a reaction provoked by extension of the tuberculous infection.

In any event the affection is a common one and should always be borne in mind in examining young patients presenting signs suggestive of appendicitis. The fact that its existence does not appear to be generally recognized has induced the author to make this brief reference to it.

The Alkali Reserve of the Blood Plasma During Protein Shock. By A. A. Eggstein, JI. Lab. and Clin. Med., June, 1921.

The alkali reserve of the blood plasma is greatly decreased in shock, following the intravenous injection of toxic proteoses and typhoid vaccines in dogs and in human cases.

There was found a definite relationship between the decrease in the alkaline reserve of the plasma and the lowered blood pressure in toxemic shock.

When the alkali reserve of the blood falls below thirty volume per cent, following protein shock, the animal's life is in danger.

The administration of sodium bicarbonate preliminary to the injection of a toxic protein retards the fall of the blood alkalies to this critical point.

When the alkali reserve has been lowered in protein shock, it may be restored by the intravenous administration of sodium bicarbonate, which apparently relieves distressing symptoms.

A Study of High Blood Pressure in Women from the Endocrine Point of View. By Jacob Gutman, M.D., F.A.C.P., N. Y. Med. JI., July 6, 1921.

No case should be designated as one of essential hypertension until every possible pathological factor has been excluded. For this reason, hidden infections of the tonsils, teeth, sinuses, appendix, gall-bladder, colon, uterus, adnexa and rectum must be sought for persistently and disclosed if present. Also such other

causes as syphilis, aneurysm, sclerosis, saturnism and similar general states causative of high tension must be excluded.

Essential hypertension in multiparous middle-aged pituitotropic women is due to an increase of blood pressure raising pituitary hormones produced by a great hypertrophied, hyperfunctionating hypophysis.

The pituitary hormone is a normal factor in the maintenance of arterial hypertension through its effect upon the cardiac and arterial musculature, the renal and peripheral vessels.

The term essential, in this type of cases, is inappropriate and inadequate, and should be superseded by the term *hypertensio dyspituitaria*, which is more rational and scientific and based upon physiological data.

Hypertensio dyspituitaria constitutes no contraindication to surgical interference whenever this is required.

Studies on the Resistance of the Red Blood Cells. By Chas. H. Neilson and Homer Wheelon, J1. Lab. and Clin. Med., July, 1921.

In brief, the results are as follows: The red cells may be considered as composed of jellies which exist and depend upon their content and peculiar behavior of lipins. The cholesterol, both of the cell itself and about the cell, acts as an antihemolytic while lecithin tends to combine with toxins to form lecithides. Such formations react upon the cell to destroy its composition, thereby liberating the hemoglobin from the stroma. Diseases in which the cholesterol content is high show an increased red cell resistance to sapotoxin solutions; those showing a low cholesterol content also show a lessened degree of resistance to specific hemolytic agents. Hence it may be concluded that the cholesterol of the blood in great part determines the degree of resistance of the red cells to capotoxin solutions.

The Moral Center in the Brain. By William Browning, Med. Rec., June 25, 1921.

These cases are evidence that a brain injury can invalidate the moral control, and practically be a cause of criminality.

There is a limited region in the brain that acts as controller of the individual's morals.

This region is sufficiently restricted in extent to warrant terming it a center. As it must be largely cortical, it can be so designated.

This center is in one hemisphere, hence unilateral in type, as are certain other brain centers.

It is situated wholly in one frontal lobe.

It is always on the so-called silent or recessive side, i.e., in the right frontal lobe if the person is right-handed, and vice versa.

This center is inhibitive in action, emissive in type, and super-motor in the functional scale.

It also carries certain restraining mental attributes, such as fear, conservatism and the humane instincts.

Destruction or impairment of this center leaves the individual morally unguided.

As loss of the moral qualities can occur without loss of the intellectual, it can be concluded that the latter are centered elsewhere in the cerebrum.

Lesion of the Occipital Lobe Simulating Cerebellar Involvement. By Alfred Gordon, N. Y. Med. J1., April 6, 1921.

The case is interesting from the following viewpoints: The presence of hemianopsia which, more than anything else, led to a correct localization of the lesion. The persistence of the paradoxical reflex at the persistent exclusion of the Babinski's sign. The association of the paradoxical reflex with an increased knee jerk and a paresis on the right side. The presence of hemihyperalgesia showing irritation of the *carrefour sensitif* of Charcot.

The right sided symptoms were of an irritative rather than a destructive character. In the latter case the result would have been complete hemiplegia with hemianesthesia and a distinct Babinski reflex. The few cerebellar manifestations, such as the asynergia, the oscillations of the body from side to side while walking, can be explained by the pressure exercised upon the cerebellum from the above situated abscess. A lesion, there-

fore, of the occipital lobe may simulate a cerebellar disease, thus making the localizing diagnosis difficult.

The Effect of Starvation and of Food on the Catalase Content. W. E. Burge and J. M. Leichsenring, *International Jl. Gastro-Ent.*, July, 1921.

The catalase content of mice and of Colorado potato beetles is increased by food and decreased during starvation. The increase in catalase after food is due to the stimulation of the alimentary glands, particularly the liver in the mammal, to an increased production of this enzyme, while the decrease in catalase during starvation is attributed to a decrease in the formation of this enzyme.

The increase in oxidation after the ingestion of food is attributed to the increase in catalase and the decrease in oxidation during starvation to the decrease in catalase.

Hemorrhagic Disease of the New-Born. F. C. Rodda, *Ills. Med. Jl.*, May, 1921.

Hemorrhagic disease of the new-born is of frequent occurrence.

The disease depends upon changes in the blood which produce a delayed coagulation time and a prolonged bleeding time.

We have a simple method for determining these factors.

Hemorrhages may be concealed; blood studies may give a clue to diagnosis earlier than other symptoms.

Blood therapy by subcutaneous injection is a simple and effective treatment, if employed early.

The coagulation and bleeding times should be determined in all new-borns presenting any symptoms.

On Certain Variations in the Form of the Human Electrocardiogram. By Edward P. Carter and Francis R. Dieuaide, *Bull. Johns Hopk. Hosp.*, July, 1921.

Variations in amplitude (including extremely low values) and direction of the QRS complex and transient notching of R and S in the human electrocardiogram occur not only in lead III

but also not uncommonly in the other leads, especially in records of abnormal hearts.

These peculiarities are dependent upon the relation of the electrical axis of the heart to the planes of the leads. Tables are given showing the angles at which conspicuous variation is present in each lead, and the angles between which fairly marked variation occurs in each combination of two leads. The terms "stable" and "unstable" are suggested with reference to the variability of the leads.

Variations are due in some instances to shifts in the relative position of the heart; in others to pathological changes in the bundle tract and to alteration in the relation between the ventricles; in a great many others to causes at present unknown.

No significance is to be attached to curves of low amplitude in any one lead only.

In the light of the evidence set forth above, it is not justifiable to assume that the findings of lead III can be disregarded.

Certain Cardiac Reflex Symptoms Due to Disturbances of Remote Organs. By A. G. Sison, Philippine JI. Science, Oct., 1920.

The factors that may be responsible for the production of cardiac reflex symptoms due to disturbance of remote organs may be grouped under the following heads: (1) Mechanical, (2) chemical, (3) psychic.

Mechanical factors.—The mechanical theory may be explained in two ways: either by encroachment of the distended stomach on the space occupied by the heart, or by the mechanical irritation of the nerve endings on the wall of the stomach, produced by the stretching of the wall. Mere overloading is not always followed by such symptoms; they may be present without dilatation or distention.

Chemical factors.—The chemical causes may be endogenous or exogenous. The endogenous may be toxic substances which originated in a perverted digestion, or may be certain internal glandular secretions or hormones which, when present in the blood in larger amounts than normal, may disturb the heart action without necessarily causing pathological change in the or-

gan. They may act, however, in manifold ways on the central nervous system, on the intrinsic nervous mechanism of the heart, or on the heart muscle itself.

The exogenous chemicals, like nicotin, atropin, and others, have no place here, as we are discussing only disturbances in the body itself that are accompanied by cardiac reflex symptoms.

Psychic factors.—The psychic factors are probably ultimately chemical. We have the experiments of Cannon and De la Paz about the increase of epinephrin in a cat by psychic excitement, as rage, fright, etc. The subject of emotion is a complicated one.

In conclusion, no one of these factors is the only one responsible for the production of the cardiac reflex symptoms; but all or one of them may play some rôle in producing the symptoms in individual cases, and in many instances one or all of them may help to cause the cardiac syndrome designated under the name of cardiac reflex symptoms.

Diphtheria Bacillus Carriers. By W. L. Moss, C. G. Guthrie and J. Gelien, Bull. Johns Hopk. Hosp., April, 1921.

The carrier of avirulent diphtheria bacilli is not a menace to the community.

A positive throat culture, an elevation of temperature and a pathological throat condition without definite membrane formation are insufficient evidence on which to base a diagnosis of diphtheria with entire certainty.

Virulence tests are necessary to avoid inflicting needless hardships on carriers of avirulent diphtheria bacilli.

Infectious Diarrhœa. M. A. Royal, N. A. Jl. Homeop., Aug., 1921.

Intersusception resembles the typical case of infectious diarrhœa in its onset, but with the diarrhœa there is never a mass in the abdomen or rectum, though pain, temperature, and stools may resemble each other.

Mild cases of infectious diarrhœa in which the number of stools is not large and in which there is no blood and little mucus in

the stools are likely to be mistaken for indigestion with fermentation. Fever, abdominal pain, wasting and symptoms of toxic absorption are common to both conditions. Your microscopical examination will determine your diagnosis. With infectious diarrhoea you will have pus cells present, few gramm positive organisms and gramm negative organisms. While if your findings show no pus cells, but a large number of gramm negative organisms you have an indigestion with fermentation.

Method of stain.

To make a smear look for that area of the stool which appears to have blood and pus in it. Make a liberal smear. Stain three minutes with Gentian violet.

Wash.

Stain with Gramms iodine.

Wash and decolorize with Alcohol.

Wash and stain with dilute Carbo-fuschin.

Diagnosis of Summer Diarrhea. By J. Claxton Gittings, N. Y. Med. Jl., Aug. 3, 1921.

Summer diarrhea usually does not offer any difficulty in diagnosis except in the attempt to differentiate its two forms. Several other conditions must always be remembered, however, as a failure to recognize them may have most serious consequences.

The appearance of blood in the stools in early life, but especially in infancy, should always suggest the possibility of intussusception. If vomiting and abdominal pain or discomfort are present and if enemas bring only mucus and a small amount of fecal matter, intussusception becomes the most probable diagnosis. Confirmatory symptoms are the absence of fever and the presence of a sausage-shaped tumor, usually in the right iliac fossa. At times the tumor can be felt best by rectal examination.

The presence of vomiting also should always suggest the possibility of meningitis, which often begins with a moderate diarrhea. Pneumonia, pyelitis, and even otitis media also may be ushered in with gastrointestinal disturbances. In all of these diseases, however, the diarrhea rarely is severe enough to cause confusion with ileocolitis or functional diarrhea, and the char-

acteristic symptoms of each disease usually are conclusive. Typhoid fever may simulate ileocolitis but again the diarrhea of the latter usually is much more severe than in typhoid.

Poliomyelitis in the preparalytic stage not rarely is diagnosed as enteritis and even more frequently in the abortive forms. From careful observation and the results of lumbar puncture it should be possible to reach a conclusion, although, in the absence of an epidemic of poliomyelitis, the decision is not always easy to make.

Susceptibility to Dermatitis from *Rhus Diversiloba*. James B. McNair, Arch. Derm. and Syphil., May, 1921.

In this paper immunity is used to include tolerance.

Natural immunity exists toward the principal irritant. It is usually relative and seldom absolute. Specie immunity exists among some animals and birds. As far as we know, racial immunity does not exist among Chinese, Japanese, Mexicans, negroes, the North American Indians or any other race. There are examples of individual immunity in which immunity is relative rather than absolute. Blonds and brunettes are both affected in large proportions. Females are apparently more susceptible than males. According to one writer, fat people are more susceptible than thin people. Age may influence immunity. There is no proof, however, that children as a class are more susceptible than adults. In the same individual the degree of immunity may vary or may remain constant. The degree of immunity is probably influenced by the condition of the health and the condition of the skin. Natural immunity may be due to: the thickness of the skin and the condition of the dermal glands, phagocytosis, natural antitoxin, lack of a suitable solvent or receptors for the poison, and an absence of substances in the tissues that increase the toxicity of the poison.

Research Problems in Dermatology. Jay Frank Schamberg, Arch. Derm. and Syphil., Sept., 1921.

The results of the Sachs-Georgi reaction on the spinal fluid closely parallel those of the Wassermann test.

The Sachs-Georgi reaction is a substitute or may be a valuable addition to the Wassermann test on the spinal fluid.

The Sachs-Georgi reaction furnishes a means for an earlier serodiagnosis of central nervous system syphilis than the Wassermann test.

Epidemic Encephalitis. By W. M. Happ and V. R. Mason, Bull. Johns Hopk. Hosp., May, 1921.

DIAGNOSIS

The clinical features of this disease are so polymorphous that the diagnosis is often particularly difficult even in the presence of an epidemic. At best it is an exclusion diagnosis, for a large number of affections of the nervous system may produce symptom complexes similar to those observed in epidemic encephalitis. Only by elimination of all other known sources of nerve cell damage and by observation over a considerable period of time can the diagnosis be made with any degree of certainty.

The most important diseases which may simulate epidemic encephalitis are the various other types of encephalitis, tuberculous meningitis, abscess and tumor of the brain, acute poliomyelitis and syphilis of the nervous system.

PROGNOSIS

The mortality varies within wide limits in the various reports. In Germany it has been 30 to 40 per cent (Economo, Dimitz), in France 25 to 30 per cent (Netter, Bernard), in England 20 to 50 per cent (McNalty, Howell) and in America 10 to 40 per cent (Abrahamson, Boyd, Wegeforth and Ayer).

In this series of 81 cases there were six deaths, a mortality rate of 7.4 per cent. In general, if the patient survives the acute stage of the disease, the prognosis as to life is fairly good; as to complete recovery, however, the prognosis must be reserved owing to the frequency of sequelæ. Relapses are rare, but are said to have a high mortality (Netter).

Acute Partial Enterocoele. By Charles F. Sawyer, Surg., Gynec. and Obst., July, 1921.

The condition of acute partial enterocoele is not so rare as formerly considered and may occur at any abdominal hernial site.

Symptoms are milder than in other strangulations and lack uniformity. The fact that pain is referred to the epigastrium with little or no localization at the hernial site is noteworthy.

The diagnosis must be based on history of old hernia usually, symptoms of strangulation without the constipation in many cases, the lack of abdominal distention, and the small tumor mass or none at all at hernial site.

The prognosis is unfavorable because of late diagnosis and early gangrene of gut.

The Examination of the Fundus Oculi. From the Standpoint of the General Practitioner. By John Coghlan, Amer. Phys., Sept., 1921.

In the hands of many experienced men the ophthalmoscope, as a means of diagnosis, is as necessary to them as the stethoscope is to the general practitioner of medicine. For instance, in the case of brain tumors, it is a fact that a proper examination and observation of the fundus oculi enables the physician to readily distinguish a solid from a fluid tumor, especially when the same is situated on or near the optic nerve. In the case of a solid tumor, the pressure is constant, while with one of a fluid nature it relaxes with the heart beat. This examination should only be conducted in a dark room. The unquestionable value of the ophthalmoscope in the detection of choked disk, syphilis, tuberculosis, high and low blood pressure, arteriosclerosis, thrombosis of the blood vessels, tumors of the orbit, diabetes, kidney diseases, wood alcohol and lead poisoning, and many other conditions of physical derangement or deficiency ought to be sufficient stimulus to the average physician to make more frequent use of the ophthalmoscope in his general practice, but it should always be understood as an essential corollary of such use of this instrument in a physical examination of any kind that the

findings in every case ought to be confirmed by chemical, microscopical and blood tests.

(Compare: Adam: "Ophthalmoscopic Diagnosis."—Rebman Co., New York.—The Editor.)

Basal Metabolism and Endocrine Manifestations. By A. S. Blumgarten, N. Y. Med. Jl., July 6, 1921.

Endocrine manifestations occur in common medical diseases other than the frank syndromes in several forms: a, as a *forme fruste*; b, as a visceral disease in which the endocrine phase is masked by the visceral symptoms or as the earliest manifestation of the frank syndrome; c, as the earliest manifestation of a systemic infection; d, as an endocrine tropism with functional insufficiency of the dominating gland.

The recognition of these endocrine manifestations in various common diseases has heretofore been based largely on clinical grounds.

Since the basal metabolic level is raised in thyroid overactivity and lowered in thyroid deficiency, we can use the determination of the basal metabolic level as an aid in determining the presence or absence of thyroid overactivity or deficiency in various common diseases which show such clinical signs.

A number of illustrative cases are presented in which endocrine disturbances in common medical conditions are determined by means of the basal metabolism determination, in conjunction with the clinical signs.

The Diagnostic Value of the Pupil in General Medicine. J. H. Bailey, N. Y. Med. Jl., June 15, 1921.

Before attributing pupillary abnormalities to systemic disease, it is necessary to exclude all local causes. Acute affections of the cornea or iris are accompanied by a contracted pupil; in glaucoma the pupil is dilated, oval, and reacts sluggishly; when adhesions bind the iris to the cornea or lens the pupil is distorted and its activity impaired; advanced deterioration of vision from disease of the fundus oculi is associated with large pupils and

slow light reflex; orbital cellulitis, or tumors, in the orbit, may press upon the ciliary ganglion or oculomotorius and be responsible for a mydriatic paralysis.

It may be asserted that, although normal pupils do not clothe the possessor with good health, yet abnormal pupillary phenomena, in the absence of local factors, signify systemic disturbance, usually of a grave nature.

Visual Errors in General Practice. By Louis H. Schwartz. N. Y. Med. Jl., June 15, 1921.

It must be evident that, although no one would attempt to attribute the various symptoms mentioned as due to imperfect vision alone, nevertheless we do obtain a great advantage by ascertaining whether or not the eyes are emmetropic (with or without lenses). And, inasmuch as the question of normal vision can be determined, it is worth while doing in every case where there may be any suspicion or even possibility of the eyes being at fault. One might imagine that if a patient had any defect of sight, he would be pretty sure to know about it. Yet the experience of every ophthalmologist is that some persons may be totally blind in one eye without even suspecting it. Not only do most physicians fail to test the vision, but the author has encountered instances where patients actually complained of ocular disturbance and the doctors paid no attention to the fact, possibly just because these practitioners do not do eye work. Every man doing general work should have a Sneller test card in his office and ascertain the visual acuity.

Each eye must be tried separately. If the sight is below normal, let the patient look through a pin hole made in a card, and, should he see more that way, it is almost positive proof that his sight can be improved with glasses. All this takes but a moment or two, and will very often give gratifying results. During the past years, many cases like those which have been described were referred to the author by other physicians, sometimes for a fundus examination, but frequently the patients needed lenses only, or possibly a change of eyeglasses. Usually, however, these cases are seen first by the man doing gen-

ral work, and, unless the errors are discovered by him, both the physician and the patient pay the penalty.

Adenomyoma of the Fallopian Tube. By Arthur E. Mahle, Surg., Gynec., Obst., July, 1921.

The term "tubal adenomyoma" is a correctly applied term to adenomyomata arising in the tube, since the origin of the glandular portion is from the mature epithelium of the tube.

The hypotheses of the origin of tubal adenomyomata from the wolffian and muellerian ducts are untenable.

Tubal adenomyomata are in every case associated with an inflammatory condition and most probably are end products of the process of inflammation.

Some relation exists between sterility and the presence of adenomyomata of the fallopian tube.

There are some slight histological differences between tubal adenomyomata and those commonly found in the uterus, but this difference is most probably due to the place of origin and subsequent development and not to the etiological factor.

Vesicosigmoidal Fistulae. By George Douglas Sutton, Surg., Gynecol., Obst., April, 1921.

Bladder mucosa may be normal in the presence of a vesicosigmoidal fistula.

Vesicosigmoidal fistulae are far more commonly the result of infective or inflammatory causes than the result of malignancy; probably the most frequent cause is inflammatory disease of the uterine adnexa and next in frequency is sigmoidal diverticulitis.

Stricture or stenosis of the rectum or the sigmoid below the fistulous opening tends to increase the size of the fistula; it may also be one of the factors in the development of acquired diverticula of the sigmoid.

Mild cystitis or local areas of cystitis around a fistulous opening with intervening normal bladder mucosa are common symptoms.

The symptoms from vesicosigmoidal fistula existed in the majority of the 34 patients for nearly one year or more prior to

operation. Two had symptoms for ten years with only mild diffuse cystitis, while those with marked cystitis had had symptoms for about one year.

Ascending ureteropyelonephritis is not usually associated with vesicosigmoidal fistula.

Vesicosigmoidal fistulæ may heal spontaneously, if of infective or inflammatory origin.

Relation of Differentiation and Lymphocytic Infiltration to Postoperative Longevity in Gastric Carcinoma. By Wm. Carpenter MacCarty and Arthur E. Mahle, J1. Lab. and Clin. Med., June, 1921.

The average length of postoperative life is 7.5 per cent greater in cases with differentiation than in those without differentiation.

The greatest frequency of cases with no differentiation occurs in cases between 29 and 40 years of age.

The greatest frequency of cases with the greatest amount of differentiation occurs in cases between 40 and 50 years of age.

The average length of postoperative life is greatest in cases without glandular involvement plus lymphocytic infiltration.

The cases without glandular involvement but with lymphocytic infiltration live 124 per cent longer than those without lymphocytic infiltration.

Cases with glandular involvement lived 146 per cent longer when there was lymphocytic infiltration than did those with no infiltration.

The highest percentage of cases, without lymphocytic infiltration, were those with no glandular involvement.

The highest percentage of cases, with lymphocytic infiltration, were those with glandular involvement.

The highest percentage of cases with marked lymphocytic infiltration occurred between 60 and 72 years of age and 40 and 50 years of age.

The highest percentage of cases with no lymphocytic infiltration occurred between 50 and 60 years of age.

The average length of postoperative life in cases with differ-

entiation and lymphocytic infiltration combined is 82 per cent greater than that without differentiation and lymphocytic infiltration combined.

Benign Gastric Ulcer in a Known Syphilitic. By W. Frank Fowler, Surg., Gynecol., Obst., May, 1921.

Organic gastric syphilis may simulate (a) benign gastric ulcer, (b) gastric carcinoma, or (c) present an atypical gastric picture.

The diagnosis of organic gastric syphilis is often difficult and sometimes impossible.

A negative Wassermann reaction does not disprove the existence of syphilis and a positive reaction does not prove that a gastric lesion is specific.

The "therapeutic test" is usually reliable but not infallible.

The roentgenographic evidence is not conclusive.

Exploration may not be determinative, particularly as regards differentiation from carcinoma.

Atypical, chronic gastric disorders which are unresponsive to the usual treatment should arouse suspicions of syphilis.

A Comparison of Important Factors in the Diagnosis of Gastric and Duodenal Ulcer. E. W. Rowe, J1. Radiol., May, 1921.

A careful history should precede all study of any gastro-intestinal lesion. A history is present, even though not diagnostic, in 90 per cent of all ulcers.

The physical findings follow constantly a positive history. While less valuable, they add to the weight of evidence.

Clinical laboratory results are the weakest of all, but if characteristic they may turn the tables toward an exact diagnosis.

The roentgen findings are the most exact of all, but do not in any sense supersede the history.

The careful correlation of history, physical findings, clinical laboratory results and roentgen evidence has raised the percentage of accuracy from about one-third to nearly one hundred per cent.

Gastroenterological Gleanings from the Mayo, Sippy, and Boston Clinics. By S. Wendkos, N. Y. Med. Jl., Sept. 7, 1921.

To sum up, from the different modes of thought regarding the etiology, psychology, pathology, diagnosis, and treatment of gastric disease, the author has formed one composite conception for himself of this most difficult branch of internal medicine. It consists of the most widely prevailing opinion, that as regards organic disease of the stomach and its adnexa, infection and intoxication play the most important rôle; that infection takes place as a result of infections in the mouth, respiratory tract, appendix and elsewhere, as primary foci; that the seat of intoxication is in stasis of the intestinal tract; that disturbances of the autonomic nervous system produce many gastric conditions, simulating organic disease; that the diagnosis should be based on a thorough study of the individual from the points of view outlined above, and of the intestinal tract, including detailed history, physical examination, X-ray, and, last but not least, chemical examination of the secretions; that medical treatment properly applied, even in organic disease, is more efficient in early cases than surgery; that chronicity of ulcers is produced by lack of proper treatment in early stages; when properly managed by dietetic régime and frequently gauged by the fluoroscopic screen, the degree of improvement can be studied to better advantage. By following such a program many more cases can be cured medically, more cases brought to the surgeon much earlier, and thus will be diminished the incidence of cancer implantation, and the surgical complications arising from myocarditis, arteriosclerosis, and other conditions when operation is delayed too long. The newer type of gastroenterologist is to be commended for selecting the most difficult branch of medicine.

Human Gestation and Our Embryological and Morphological Data. By James Oliver, Edinb. Med. Jl., April, 1920.

Attention is drawn to the fact that as in the case of the fertilized vegetable seed and the fertilized bird's egg evolutionary life in the fertilized human ovum is started not by intrinsic but by

extrinsic conditions, and one of the most important of these is an abundant supply of free oxygen. During the intermenstrual resting period the oxidative processes and powers of the uterus are merely sufficient for the requirements of this organ itself, but in anticipation of and as a preparation for menstruation the oxidative processes and powers of the internal organs of generation became enormously increased, and if a fertilized ovum should chance to be present it is at this time that it is fanned into life.

It is somewhat astounding that embryologists are still content to adopt and follow the avowedly unsound and unscientific method of reckoning the age of any human embryo, and assigning dates to the various depicted stages of our embryonic development from the date of cessation of the last menstrual discharge.

Giardia (Lamblia) Intestinalis. By Kenneth F. Maxcy, Bull. Johns Hopk. Hosp., May, 1921.

Giardia intestinalis is present in the intestinal tract of a large percentage of apparently normal children.

It is rarely found before the first year.

The percentage of infestations appears to be much higher in childhood than in adult life.

The finding of a large number of motile *Giardia* in a diarrhoea or dysenteric stool is not sufficient evidence to establish the etiologic relationship of this parasite.

In certain rare instances the parasite may be responsible for some intestinal disturbance, although this point has not yet been firmly established.

Chancre of the Gum with Report of a Case. Joseph Victor Klauder, Arch., Derm. and Syphil., May, 1921.

Chancre of the gum is to be differentiated from inflammations and ulcerations due to a variety of causes affecting the gums and from tumors involving the gums. The distinctive clinical features of the erosive chancre and of its several varieties are rather characteristic, so that the differentiation of this

type from other lesions is not difficult. In addition, the early appearing and usually extreme adenopathy is a valuable aid in differential diagnosis. Moreover, the Wassermann reaction and the dark-field examination constitute additional means of diagnosis. The differential diagnosis of the ulcerative type is considerably more difficult. The following considerations may serve in making the differentiation: the well-defined circumscription and rapid evolution of the lesion, and the history, if obtainable, that the sore appeared first as a superficial ulceration and later changed in character. The associated adenopathy, the Wassermann reaction and, to a less extent, the dark-field examination are valuable diagnostic aids. The recognition of *Spirochaeta pallida* in this type of chancre is difficult.

Chancres of the gum have frequently been diagnosed as one or the other variety of tumors which occurs at this region. In the case seen by Davis, the lesion was diagnosed sarcoma and in one of Breda's cases excision of the lesion was made, together with the adjacent teeth and part of the alveolus, on the supposition that the lesion was sarcomatous. In one of Gaucher's cases the chancre was removed in the mistaken diagnosis of an epulis and in Rosenthal's case for a malignant tumor.

Chancre of the gum may simulate in appearance these tumors which occur on the gum; fibroma, epithelioma and sarcoma. Fibroma arising from the gum or peridental membrane is styled fibroma epulis. This lesion is firm to the touch, and its surface is covered with mucous membrane. It is frequently sessile but may be pedunculated. It grows slowly but may attain a large size. It is nonulcerated, painless and not tender. It does not cause an enlargement of the lymphatic nodes. It may undergo myxomatous change or may become sarcomatous.

Epithelioma of the gum arises as a warty growth or as an indurated area which ulcerates early, or its primary appearance may be that of an ulcer. The ulceration is somewhat characteristic, especially the edges, which are raised and hardened. Its evolution and the adenopathy it produces are considerably slower than those of chancre.

Sarcomas, which are perhaps the most frequent tumors found

in this locality, usually occur on the upper rather than on the lower gum. They appear as flattened masses at the edges of the gums which are not primarily ulcerated, but in which inflammation and ulceration may occur secondarily. Primarily, they are painless and not tender. Pain and tenderness, however, are present when the tumor is inflamed and ulcerated. The evolution of a sarcoma of the gum is considerably slower than that of chancre, and there is little tendency to metastasis and to lymphatic involvement.

The Relation of Herpes Zoster to Chickenpox. By Walter M. Kraus, N. Y. Med. Jl., Aug. 3, 1921.

The pathology of the two diseases cannot be used as a basis for or against concluding identity of cause, since it is quite possible that two closely allied poisons might produce practically identical lesions. The same applies to the distribution.

At the present time, however, enough instances of the coincidence of these two diseases have occurred to make it more than likely that they have a common cause, at least when they appear within twenty-one days of each other. The occurrence of herpes zoster without any definite association with chickenpox or other cases of herpes zoster is not an argument against this thesis, since herpes zoster is very often only a secondary manifestation of some other disease.

It appears that the sequence may be in either direction, herpes zoster-chickenpox or chickenpox-herpes zoster. The former is much more common. This gives rise to the notion that when the diseases appear in the same individual, the virus becomes disseminated in the blood, due to the vascular damage in the ganglia. This would explain the aberrant vesicles of generalized herpes zoster. No explanation of transmission of either disease to others is at hand.

Two methods of solving the matter present themselves: 1. Experimental. Up to now, however, no organism or virus has been demonstrated for either disease. 2. By abundant reports of instances of the coincidence of the two diseases and through the efforts of boards of health. Were herpes zoster made a reportable disease, some light would soon be thrown on the matter.

Modern Methods in Handling Hospital Statistics. By Raymond Pearl, Bull. Johns Hopk. Hosp., June, 1921.

This paper is intended to show:

That modern statistical methods have a definite and distinct place in the functional economy of a hospital, and particularly of a hospital where research and teaching form a part of the activities of the institution.

That the inauguration of appropriate methods of handling hospital records will enormously facilitate and economize all the work of the hospital which directly or indirectly comes in contact with or depends upon case histories.

That to accomplish these ends only a relatively small addition to either personnel or material equipment is necessary.

A Case of Double Congenital Hydronephrosis. By R. W. Johnstone and Francis J. Browne, Edinb. Med. Jl., June, 1921.

There is present in the ureter a chronic inflammatory change involving chiefly the muscular coat, and giving rise to a new connective tissue formation which causes thickening of the wall, atrophy of the muscle, and stenosis of the lumen of the ureter on the right side, and on the left complete obliteration.

The stenosis of the right ureter interferes with the free exit of fluid secreted by the kidney, with secondary dilatation of the kidney tubules into cysts. On the left side the complete obliteration of the ureter has resulted in cessation of secretion and partial atrophy and sclerosis of the kidney tissue.

The primary condition is not developmental, but probably a chronic inflammatory ureteritis occurring during foetal life.

The Diagnosis of Hypothyroidism. By Nelson W. Janney, Calif. State Jl. Med., Aug., 1921.

Latent hypothyroidism is much more common than is generally appreciated.

With the aid of special diagnostic tests, particularly the determination of the basal metabolism, hypothyroidism can now be certainly diagnosed much more frequently than formerly.

A critical survey of the clinical and laboratory data of diagnostic importance in hypothyroidism is given.

The differential diagnosis of hypothyroidism from other diseases is briefly summarized in the light of recent knowledge.

Hysterectomy. Blaine L. Ramsay, Ills. Med. Jl., May, 1921.

Study well the allied conditions and their differentiation pertaining to disturbances of the uterus and uterine functions.

In diagnosing, use all available methods and knowledge you possess; then, if there is any doubt, consult another surgeon. Consultation with *good* men will do you good and your patients will think none the less of you if you explain the benefits derived from two opinions (by consultation, not a dummy or prearranged farce, but an honest exchange of opinions). Be as sure as possible of your diagnosis before proceeding and, as this grows on you, you will rise in your *own* estimation as well as in others.

Go deeply into the study of pathology and the usual course of these conditions and be prepared and looking for the unusual.

You must be familiar with the normal anatomy and physiology before you can know the pathology.

Study the functions of the pelvic organs and their far-reaching effects upon the system and try to maintain, as far as possible, that function.

Advice to the patient can only come "conscientiously" after a broad and comprehensive knowledge of the subject in hand.

Operation of necessity or selection is governed by a keen knowledge of aforesaid conclusions.

The term "Abuses" and the application of its meaning will decrease in direct proportion to the knowledge gained and applied in this field of surgery.

Focal Infections with Metastatic Manifestations. By John H. Cunningham, Surg., Gynecol., Obst., June, 1921.

The author wishes to urge that the possibility of foci of infection in the deep genital structures be included in the differential diagnosis of infectious arthritis, and he feels certain that those

who recognize such lesions and deal with them surgically will be enthusiastic about the results.

The Toxic Agents Developed in the Course of Acute Intestinal Obstruction, and Their Action. By Harvey B. Stone. Surg., Gynecol., Obst., May, 1921.

The following facts concerning acute intestinal obstruction may be stated as generally believed:

The cause of death in acute obstruction is a form of chemical intoxication.

The toxic chemicals are developed in the process of protein disintegration.

The effect of these toxic chemicals is to cause a fall in blood-pressure, temperature disturbances, vomiting, diarrhoea, disturbance of kidney excretion, high non-protein blood nitrogen, delayed coagulation-time of the blood, profound congestion of the duodenal and jejunal mucosa, collapse, death.

The following points are in dispute:

The precise chemical nature of the chief toxic factors.

The precise cause, bacterial or other, of the protein disintegration that results in toxin production.

The precise mechanism of absorption.

Brief Notes on Hypertonia and Kidney Disease. By Eskil Kylin. Act. Med. Scand., Aug. 23, 1921.

The author has found that in both the forms of so-called kidney disease accompanied by hypertonia which have been examined above, there is no firm foundation for the localization of the disease primarily to the kidneys. There is rather reason to believe that in both these morbid conditions the kidney symptoms are a result of the injury to the vessels which is caused by, or possibly which is the cause of, the hypertonia. On the other hand, the cause of the hypertonia still remains unexplained.

Laboratory Procedures. By F. H. Lamb, JI. Iowa State Med. Soc., July, 1921.

The author emphasizes the element of personal equation in

laboratory work. Rightful limitations must be freely admitted, and responsibilities carefully weighed. Laboratory studies have brought about great changes in our conception of disease, and in the manner of its detection, yet laboratory diagnosis possesses no machine like accuracy. The laboratory should be looked upon as a source of valuable data relating to diagnosis in just the same way as a cardinal symptom of disease contributes to a symptom complex or syndrome. He who has the most evidence upon which to base his decisions will, in the end, make the better diagnosis.

Epidemic Mastoiditis. By James E. Reeder, Otol., Rhinol, Laryngol., June, 1921.

Why such an epidemic of mastoiditis should occur in our army camps, it is difficult to say that any one thing was the etiologic factor, but a number of factors are to be considered. The one important thing which stands out most were the complications associated with the acute contagious diseases, such as measles.

The mastoid may become involved through the blood stream or the nasopharynx route.

Bone necrosis is the most important thing to keep in mind. This can be determined by constant use of the X-ray along with clinical manifestations.

Those mastoids following the acute contagious diseases as complications, in all probability, get their start through the blood stream and give us the most trouble.

The Diagnosis of Myocardial Disease. By Harold E. B. Pardee, N. Y. State Med. Jl., Aug., 1921.

The electrocardiogram, used in conjunction with the symptoms and with the older methods, palpation, percussion and auscultation, and sometimes aided by the X-ray should serve to correct our clinical diagnosis of myocardial disease, and to reduce some of Cabot's 52 per cent of error due to diagnosing myocarditis where it is not. In a series of thirty cases this clinical diagnosis was made after a careful consideration of the clinical symptoms and signs which have been enumerated. Of

this group twenty-two cases gave electrocardiograms showing one or more of the abnormalities due to myocardial disease, while the remaining eight cases gave normal records.

The method should also help to discover some of the 26 per cent whom Cabot found to have myocardial disease, although it had not been diagnosed before death. This error arises from two main reasons: either there is a coincident valvular disease or renal disease to which all of the symptoms and signs are attributed, or the symptoms and signs may not be distinct enough to justify the diagnosis. Abnormal records are often found in both of these classes of patients, so that we have here a means of deciding which of these patients surely have myocardial disease, and which of them probably have not.

Cases of Nontraumatic Myelitis and Their Probable Etiology. Casimiro B. Lara, JI. Phil. Isl. Med. Assoc. Mat., April, 1921.

Most cases of nontraumatic myelitis are not associated with acute diseases or specific fevers.

Syphilis has not been found in these cases to be the most common etiology.

A definite clinical diagnosis of syphilis as the causative factor in a given case must be made only after careful consideration of the history and the clinical picture of the case, corroborated by laboratory examinations, most important of which is the positive Wassermann reaction in the spinal fluid.

Tuberculosis must always be considered a factor in the etiology of acute myelitis, even in the absence of tuberculous disease of the spine, so long as the case is associated with active tuberculous process elsewhere, especially in the lungs.

Many cases of myelitis of obscure etiology probably are of the infective type and bear close relationship to focal infections, especially those affecting the pelvic organs and the genitourinary tract.

Streptococcic Osteomyelitis of the Temporal Bone. By Harry Boyd-Snee, Indpls. Med. JI., May, 1921.

Streptococcic osteomyelitis of the temporal bone is a clinical entity and is to be diagnosticated as such.

The etiological factor is the streptococcus micro-organism. It is identified as a Gram positive diplococcus, cultures from which the pneumococcus has been excluded by test show typical chain formation and are typed as streptococcus mucosus capsulatus, streptococcus hemolyticus and streptococcus nonhemolyticus.

Recovery of the streptococcus organism from the tympanic exudate in a case of otitis media either acute exudative or acute suppurative is sufficient evidence to support the diagnosis.

The diagnosis is an absolute indication for immediate operation.

Peritonitis. By John B. Deaver, N. Y. Med. Jl., Sept. 7, 1921.

In appendicitis, for example, the most common source of peritonitis, the initial pain is very severe, owing to occlusion of the appendicular artery and beginning necrosis, but later, when necrosis is complete, the pain loses its severity; indeed, it may subside altogether. This subsidence without doubt is the most serious of the many insidious features of nearly all types of peritonitis, more particularly, however, of appendicitis. The false security aroused is responsible for many of the fatal cases of acute appendicitis.

The initial pain is often accompanied by a chilly sensation or a distinct chill, and in case of perforation is soon followed by primary reflex nausea and vomiting and the typical reflex rigidity and exquisite tenderness of the abdominal muscles, the latter being usually more marked over the seat of the trouble; the picture of the patient, with thighs drawn up, shoulders high, and superficial and costal respiration, is too familiar to need more than passing mention. It evidences the fact that much of the pain is due to friction of one diseased part against the other, and represents an involuntary act of protection against such contact. The pulse is rapid, small, thin and wiry.

The temperature at first is low, especially in the presence of a large perforation, but it very soon rises to considerable height. The temperature, however, is not of much diagnostic or prognostic value. The vomiting is often interpreted as Nature's effort to throw off the toxins absorbed by the gastrointestinal

tract. It is well to aid the process by the use, not of purgatives, but of gastric lavage. The abdomen usually becomes distended and tympanitic. In the fatal cases the patient shows all the distressing signs of general toxemia until relieved by death.

The Nervous Patient from the Viewpoint of the Vegetative Neurologist. By Edward Hiram Reede, N. Y. Med. Jl., June 15, 1921.

The vegetative neurologist draws certain premises and conclusions regarding the nervous patient as he is met with in every practitioner's office. There is a very definite group that fulfill these conditions.

The patient is reacting to environment as a unit, and he is reacting through his emotional apparatus in the direction of an instinctive adaptation.

The adaptation of the emotional preparation in the viscera tends to flow out in mental or muscular expression.

If this outflow is prevented in mind and body, then the visceral disturbance becomes so pronounced as to appear as a symptom or pantomime.

It is peculiar to the individual to erect his environmental stimuli into symbols or symbolic ideas which gain a fixed and definitive power. That it is peculiar to the individual to develop a definite manner of visceral pantomime, which always remains consistent with the environmental stimulus.

Then on top of all this is the tendency to accept the result of the above, the visceral pantomime, as a disease, and taking disease as a premise he erects a neurasthenic cycle which revolves in a circle of increasing fear symptoms. He is afraid because he is sick and gets sicker because he is afraid. And this circle is closed and shut off from the original inlet into the maze, the complex which produced the primary pantomime.

The Pituitary Gland in Children. By John Fraser, Edinb. Med. Jl., Sept. 19, 1921.

It is impossible at this stage to discuss with any degree of

certainty the reason for and the results of the "physiological tides" which occur in the pituitary gland of the child. One can theorize on widely interesting possibilities, but there is little or no proof of any of them. There are certain statements, however, which may be definitely made:

As a result of the comparison of adult pituitaries with those described in this series, it is believed that the physiological changes described are limited to the period from birth to the end of adolescence. It would, therefore, seem reasonable to assume that the pituitary changes described have some relationship to the changes of tissue growth which are so preeminent during this period.

The changes occur equally in boys and in girls; they therefore have no specific relationship to the female generative organs, though this argument does not exclude an influence on the generative system as a whole. The occurrence of the changes in the earliest years of life, while the sexual characteristics are still largely in abeyance, would seem to suggest, however, that they possess no sexual bearing.

The changes have no relationship to any morbid condition. The specimens examined have been obtained from children who have succumbed from widely different types of disease.

In view of the fact that it has been proved experimentally that the secretion of the anterior lobe stimulates growth, the idea naturally occurs that the changes described have some relationship to the growth of bone, and more especially to the epiphyseal changes which result in growth in length of the bone.

A Clinical Study of the Placenta. By John E. Talbot, Surg., Gynecol., Obst., June, 1921.

Placental infarcts are the results of hæmatogenous infection of the uterine blood vessels, resulting in localized thrombosis.

As such, they are a clinical record of the presence of bacteria in the blood stream of the pregnant woman.

The injury done to the placental site, when it occurs in the early months of pregnancy, may affect the shape of the placenta and thus account for certain of the complications of pregnancy.

The obstetrical history of the second case reported represents a clinical entity with chronic sepsis in the tonsils as the continuous etiological factor.

Placental infarcts give more positive evidence and of greater value than blood culture methods of the presence of bacteria in the blood stream.

A Study of the Pneumococcus and Streptococcus Groups in Their Relation to Influenza. By W. R. Logan, Edinb. Med. Jl., May, 1921.

The presence of complex infections in epidemics of this kind does not imply that the original bacterial cause at the beginning of the outbreak was not a single type of micro-organism; nor does proof that an infecting organism is of a type foreign to normal mouths convey with it any suggestion that a temporary susceptibility, individual or general, due to causes at present unknown, is not the prime factor in the initiation of such epidemics.

Prenatal Death. By Arthur Robinson. Edinb. Med. Jl., April, 1921.

A considerable amount of prenatal death is normal in mammals.

It is due partly to the inability of the gametes of certain individuals to unite with one another and partly to the production of abnormal zygotes by the union of certain gametes.

The inability to unite, and the production of abnormal zygotes when union occurs, are not dependent on disease or abnormal environment of the parents.

When prenatal death occurs, as it does in many cases, after the zygote has become attached to the decidua, the death must be followed by the absorption or the abortion of the zygote.

Abortions which follow normal prenatal death are themselves normal, and the changes found in the uterine mucosa in such cases are regressive and useful, and not inflammatory or degenerative.

Proctitis and Sigmoiditis. By Charles J. Drueck, *Med. Rec.*, Aug. 6, 1921.

Etiology of Acute Proctitis.—Among the causes of proctitis the following may be mentioned: Irritants directly attacking the mucous membrane, such as worms, highly seasoned foods or hard substances in the fecal mass, for instance, fish bones and hulls of cereals. Fecal irritants are common causes both of the acute and the chronic type. Constipation and fecal impaction of the rectal pouch alternating with periods of liquid feces often induce a sudden inflammation of the sigmoid flexure and rectum, or the rectal disturbance may be an extension of colitis resulting from the passage of the irritating discharges from above. Seasonal changes of food or water, particularly during the summer, or sitting on a cold, wet seat often are exciting causes. In all of these conditions sudden and violent changes are important factors. Proctitis may result also from the use of strong purgatives, irritating suppositories, or as an extension of inflammation from hemorrhoids, prolapse of or eczema about the anus, or from disease of the neighboring organs, such as the bladder, prostate gland, vagina, or uterus. In a few instances, new growths within the rectum, such as polypi, adenoma, villous growths, and papilloma, also intussusception, occasion periodic exacerbations or protract the chronic proctitis.

Pitfalls in Prostatectomy. By S. P. Martin, *N. Y. Med. Jl.*, May 4, 1921.

The bladder may not be palpable, or it may form a definite, firm, elastic tumor extending upwards above the pubes to a greater or lesser extent, and may reach to the umbilicus. The medium-sized bladders are met with in cases of painful retention, the large flaccid bladders in cases of painless incontinence with overflow.

Rectal examination is best carried out after the bladder has been emptied. With the utmost gentleness the surgeon inserts a gloved finger, lubricated with vaseline, into the rectum, taking note of the condition of the sphincter, which if relaxed at once suggests a lesion of the spinal cord and should be further checked

up later by careful cystoscopic examination and a Wassermann test. The size of the posterior surface of the prostate is noted, the nature of the surface, whether it is smooth and rounded or nodular; its consistency, whether it is soft and elastic, fibrous, or of stony hardness. Adenomatous prostates do not necessarily feel enlarged through the rectum, though they may be causing dangerous symptoms.

Action of Radium and Roentgen Rays on Normal and Diseased Lymphoid Tissue. By Isaac Levin, JI. A. M. A., Sept. 17, 1921.

The outstanding feature of the present investigation consists in the fact which it brings forward that, in diseases of the lymphoid tissue, radium and the roentgen rays do not act merely as a local agent which reduces the size of a tumor or an organ, but produce a generalized effect on the lymphoid system of the whole organism. It is impossible to assert at present with any amount of certainty what the mechanism of this influence is. Some investigators maintain that specific enzymes are freed from the disintegrating lymphocytes. The hypothesis is quite plausible, but there is hardly any work done yet to clear up the problem.

Lymphoid tissue in health and disease is of greatest importance in animal economy, and the action of radium and roentgen rays on this tissue presents the most remarkable phenomenon in biology. Experimental and clinical study of the problem will elucidate, on the one hand, the mechanism of the biologic action of the rays generally, and will also help in clarifying many mooted problems of structure, derivation and pathogenesis of the blood, blood-forming organs and lymphoid tissue, both normal and diseased.

Sea Bathing and the Ear. By Alexander Rovinsky, Med. Rec., July 2, 1921.

A danger which, though it may appear far fetched is nevertheless within the domain of the possible, is injury to the drum when the bather exposes his side to the onrushing wave, and

the ear is thus struck sideways with considerable force. It is a well-known fact that in a certain class of patients syringing of the ear, even with warm water (as it should properly be done), not to speak of cold, is apt to produce dizziness and even fainting, no matter how mild the force of the injected stream. It stands to reason that when a volume of cold water strikes the drum with sufficient force it is apt to produce dizziness and even unconsciousness, which may be followed by drowning.

Singultus. By Harry Schultz De Brun, N. Y. Med. Jl., June 1, 1921.

Singultus has been known to be the sole cause of death.

The symptoms may be classified as to cause: a, simple; b, inflammatory; c, irritative; d, traumatic; e, specific; f, neurotic; g, unknown origin.

Attacks last from one minute to several months, with or without spasms, during sleep, and with or without remissions.

Internal Secretion of Spleen. By N. B. Eddy, Endocrinol., July, 1921.

The hypothesis that the spleen produces an internal secretion is supported by (1) the changes in the erythrocytes after splenectomy, (2) the modification of the blood picture in hyperplasia of the spleen, ameliorated in some cases at least by splenectomy, and (3) the specific effects on the red blood corpuscles of injection of splenic extract.

Nothing is known of the chemical nature of the supposed splenic hormone, and it is difficult to formulate a consistent theory of its possible mode of action. However, the following suggestions are made: That the chief function of the spleen is the removal from the circulation of the disintegrated erythrocytes; that the splenic cells elaborate this material, producing thereby an internal secretion, which was a component of the erythrocyte either stroma or pigment portion; that this internal secretion reduces the resistance of all the red blood corpuscles, the effect amounting to actual destruction of the older cells;

and, finally, that this internal secretion, possibly after modification by the liver, stimulates the erythrogenic function of the bone marrow and is used up in the manufacture of new corpuscles.

Elephantiasis with Reference to Syphilis. By Joseph Lintz, N. Y. Med. JI., April 6, 1921.

Direct evidence of the filarial origin of elephantiasis has never been fully demonstrated.

Three cases are presented of unilateral enlargement of a limb due to syphilis. One case quite definitely and two cases very suggestively resemble elephantiasis, the pathological lesion of which is probably an endolymphangitis. The two cases treated responded to the therapeutic test, though not yet completely cured.

It is suggested that all cases of elephantiasis be exhaustively examined for evidence of syphilis, and that intensive antisyphilitic treatment be tried. This is especially desirable because of the otherwise almost hopeless prognosis.

An Intrathoracic Tumor of a Xanthomatous Character. By Nataneal Wessen, *Acta Chirurgica Scandinavica*, June 7, 1921, p. 621.

It may not, of course, seem appropriate to enter more deeply upon the problem of the genesis and matrix of these peculiar and much discussed tumors on account of the xanthomatous tumor, the localization and size of which has been described herein. It needs here only to be pointed out that, similarly to Dietrich's case, the basic-tissue or structure has also here been the fibrosarcoma. The question whether these tumors then in themselves are to be considered as a collateral species of lipoma (Lubarsch), may be left open. The main thing is that, owing to the quite natural rarity of these tumors, new cases of this kind should be subjected to scrupulous examination so that by a comparative study of more abundant material a more certain answer may be given to these questions than can be afforded by a single case.

The Effect of Tobacco on Man. By William J. Gies, N. Y. Med. Jl., June 1, 1921.

The habitually moderate use of tobacco is not harmful to adults.

The moderate use of tobacco proves distinctly helpful to certain adult types.

The habitually excessive use of tobacco may prove harmful to certain individuals. But the same holds equally true of all foods.

The excessive use of tobacco may prove harmful in certain neurovascular disorders.

The habitual use of tobacco by juveniles is harmful.

The Tonsil Question—Relation to Ductless Glands—Futility of Operative Interference in the Exudative Diathesis Type of Children. By Grant Selfridge, Otol., Rhinol. and Laryngol., June, 1921.

Physicochemistry has to do with the origin and evolution of life, and if the chemical actions, reactions and interactions in the human body are controlled by the various ductless glands, then any alteration of the chemical interactions of the body may bring about disturbances of the body growth and disturbance of metabolism.

Inasmuch as the thyroid appears to be the great regulator of metabolism and particularly of carbohydrates, and as disturbances of metabolism as well as disturbances of the autonomic nervous system are outstanding in the anaphylactic type of individual, we believe such evidence of pathologic physiology should influence the medical man of to-day to a more careful study of the patient before ordering surgery directed to the nose and throat, that may result in harm and do the patient no good.

Some Points in the Diagnosis of Late Hereditary Syphilis. By B. Barker Beeson, Ills. Med. Jl., Sept., 1921.

Late hereditary syphilis is a remarkably protean affair and may simulate, as does the acquired form, almost any known disease.

There are certain stigmata, such as the Hutchinson triad, the sabre-like tibia, the natiform skull and the peribuccal scars which may be said to be almost pathognomonic of that disorder.

From the standpoint of late inherited neurosyphilis, the presence of the Argyll-Robertson pupil as well as absence of the patellar and tendo Achilles reflexes are of extreme importance.

The Wassermann reaction is a valuable aid but should not be permitted to displace sound clinical judgment. It should, I believe, be regarded as a valuable symptom when present. Its reactivation is also possessed of a certain value but, like the Wassermann, does not possess an absolute value.

The Therapeutic test has been and remains a tried and true friend.

Physicians practicing in rural communities ought, just like those of the larger cities and towns, to keep this form of syphilis always in mind. Recent statistics compiled by Leredde in France show that it is surprisingly frequent in rural France, so why not in our own country?

When confronted with any apparent anomaly of the human structure, think of late hereditary syphilis and submit your patient to a searching investigation before dismissing him as free from it.

Other factors, notably alcoholism and tuberculosis, can also produce stigmata much like those referred to, but syphilis is most often the "African in the woodpile."

Some Experiences of Intrathoracic Tumors, Their Diagnosis and Their Operative Treatment. By H. C. Jacobæus and Einar Key, *Acta Chirurgica Scandinavica*, June 7, 1921, p. 573.

For the diagnosis and localization of pleural and lung tumors it is of great importance to make an X-ray examination before as well as after the induction of pneumothorax. By making an X-ray examination after the induction of pneumothorax valuable information is obtained, which completes that already obtained by the X-ray examination made before the induction of pneumothorax.

By thorascopic examination valuable information is obtained

for the diagnostic and localization of pleural and lung tumors, which successfully completes the result of X-ray examination.

If there is no opportunity of using a pressure-difference apparatus, it might be advantageous to induce pneumothorax previous to the operation in the pleural cavity.

If pressure-difference apparatus be employed, then pneumothorax for the thorascopical examination ought to be induced as shortly before the operation as possible, in order that the inflation of the lung after the operation may not be rendered more difficult or impossible.

If the lung is inflated after the operation, more favorable conditions for the course of healing are eventually obtained.

Specialization in the Medical and Surgical Treatment of Ulcers of the Stomach and Duodenum. By Angelo L. Soresi, Med. Rec., April 30, 1921.

The author believes that the gastroenterologist of the future must be a competent diagnostician who can judge of the value of each diagnostic means, such as history, physical examination, gastric analysis, and roentgen rays and know how to apply it to each individual case; must have had actual personal experience in applying the rational and complete medical and surgical treatment appropriate to each case; must be able to improve his diagnostic ability by actual visualization of conditions at operation; must follow his cases, and so profit by his own mistakes, which are the only ones that leave a deep impression and teach a valuable lesson.

Rare Tumors of the Cervix of the Uterus of Inflammatory Origin—Condyloma and Granuloma. By Lawrence R. Wharton, Surg., Gynec., Obst., Aug., 1921.

Condyloma of the cervix is one of the rarest of gynecological disorders.

Etiologically, pathologically, and clinically, there are two distinct types of condyloma of the cervix: the gonorrhœal and the tuberculous. When complications are not present, the symptomatology in these two types may be identical, the chief com-

plaint being the presence of a profuse, purulent, vaginal discharge which may be occasionally tinged with blood. Both from the viewpoint of the history and the clinical findings, there may be no small resemblance between condyloma and malignant tumors of the cervix.

Gonorrhœal condylomata may occur singly as isolated pedunculated tumors or in clusters of papillomata which may almost entirely cover the cervix. These masses may present varying grades of inflammatory reaction. Gonorrhœal condyloma of the cervix may be accompanied by similar lesions on the vulva and perineum and also by salpingitis and its many manifestations, but in our experience the endometrium is not usually affected. The primary focus of infection appears to be in the cervical glands. In the treatment of gonorrhœal condyloma, it is necessary to clean up the focus of infection and also to remove the local growth. Curettage of the uterus is unnecessary and should not be performed.

Tuberculous condyloma of the cervix is almost always accompanied by other manifestations of the disease. There is almost always a concurrent tuberculous endometritis and salpingitis, and very frequently other lesions may be found.

Prognosis. In gonorrhœal condyloma the outlook is uniformly good; in tuberculous the prognosis depends entirely upon the nature of the concomitant lesions and the method of treatment instituted.

Some Disgenical Effects of the War in Italy. By M. Boldrini, Social Hygiene, July, 1921.

The war, in Italy as elsewhere, and in certain respects more gravely, brought out two principal groups of harmful effects, striking both in number and quality those who are universally known as "war infants" ("figli di guerra," "Kriegsneugeborene") and threatening the physical and psychical constitution of a large number of adults who will be the parents of a generation of "peace infants."

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Special Articles

**SYNDROME OF THE LONG FIBERS OF THE CROSSED
PYRAMIDAL TRACT (SUBACUTE DEGENERATION)**

By ALFRED GORDON, M.D., of Philadelphia

READ AND PATIENTS PRESENTED AT THE OCTOBER MEETING OF THE
PHILADELPHIA NEUROLOGICAL SOCIETY

In the year 1884 for the first time attention was called by Lichtheim and Leichtenstern to pathological changes in the spinal cord in a case of severe anemia. Since then a number of cases have been reported with identical changes in the cord but without accompanying anemia. Later investigations have shown a great variability in the clinical aspects of cases with similar pathological lesions. From the material thus gathered the conception of subacute combined degeneration was created. Risien, Russell, Batten, and Collier in 1900, Brown, Langdon, and Wolfstein in 1901, Burr and McCarthy in 1903, Crouzon in 1904, Potts in 1905, Grinker in 1908 and several others contributed to the subject and reported cases with some individual variations but on a whole presenting about the same anatomic-clinical picture.

Briefly, the morbid anatomy consists essentially of degenerative changes confined exclusively to the white matter of the cord and sometimes to the brain-stem. Contrary to other forms of postero-lateral sclerosis the cord has not the shrinking appearance which is always seen in the latter. The lesion usually appears in the mid-dorsal region and it is seen first in the center of the posterior

columns, later in the crossed pyramidal tract, still later in the anterior columns. The lesion gradually increases centrifugally towards the surface of the cord and eventually involves the whole of the white matter. The degeneration spreads upwards and downwards. The lesion usually extends to the lower part of the medulla and in an exceptional case it was seen in the center of the pons.

The general characteristic of the disease distinguishing it from the classical system diseases of the cord is that besides the above mentioned absence of the shrinkage, it advances by a formation and subsequent coalescence of separate small foci. When the disease is far advanced, secondary changes may be observed in the cells connected with the involved tracts, *vis.*, Clarke's columns of cells through the spino-cerebellar tracts and the cells of Betz through the pyramidal tracts. As to the relationship of anemia to the disease under consideration, while it is true that in some cases the concomitance of the two affections has been observed, there are other cases in which anemia was not present and still others in which anemia developed only towards the latest stages of the disease. Although Nonne in 1908 maintained that the vascular lesion observed in such cases is due to the anemia and that the entire pathological process is but a focal myelitis, nevertheless close observation reveals absence of an inflammatory state of the cells but only slight changes in the vascular walls in early phases of the disease. Both elements become conspicuous only in advanced stages of the affection. Besides, there appears to be no close relation between the vascular distribution in the cord and the foci of degeneration. As it was mentioned above, the early localization of the disease seems to be in the central portions of the posterior and lateral columns. The lesion is essentially a parenchymatous degeneration of the long fibers.

The consensus of opinion of careful observers is that the anemia and the spinal degeneration are both depending upon some toxic agent and that there is no direct relationship between the two, although disturbed nutritional state associated with anemia may be one of the factors hastening spinal degeneration.

The pathological distinction between subacute degeneration and the classical system-disease finds its evidence also in the clinical aspect of the disease under consideration. First of all, in the majority of cases there are both symptoms of degeneration of the posterior and lateral columns. Great variations are observed in the conspicuous

symptoms. One or two symptoms may be pronounced in some and not in other cases. In some cases ataxia may be accompanied by spasticity of the extremities, in other cases there may be ataxia and hypotonia of the limbs. In still other cases the disease commences with ataxia and spasticity and then later the spasticity disappears and flaccidity with or without loss of reflexes makes its appearance. The onset of the disease is usually extremely slow, in very rare cases rapidity of the onset was observed.

The patient ordinarily complains of paresthesias in the extremities; Sensations of heat, pricking, tingling, numbness and sometimes actual pain even of tabetic type have been observed. The objective sensibility is disturbed and pain sense is ordinarily lost earlier and more conspicuously than tactile sensibility. The reverse is seen in exceptional cases. Among the deep sensibilities, the sense of position and the muscular sense disappear in the earliest phases of the diseases. In advanced cases all forms of sensibilities are apt to disappear. The subjective and objective sensory disorders are for a long time confined to the peripheral segments of the limb, but they gradually spread and ascend.

Motor disturbances follow the onset of sensory disorder. Ataxia and spasticity of the limbs usually appear together, although spasticity may exceptionally appear first. The motor disturbances develop gradually. At first there is a tired feeling in the legs, then dragging the leg, scraping the floor, tendency to fall, all appear insidiously. Increase of the reflexes, ankle-clonus, toe-phenomenon accompany the spasticity. Ataxia of station, of movements, loss of the sense of position are all present. While a gradual development of these symptoms leading to incapacity is the rule, nevertheless in exceptional cases sudden exacerbations occur, also in some cases remissions in the course of the paralysis have been observed.

Another interesting feature of the disease under discussion is that in spite of its progressive course, before complete impotence of the affected limbs takes place there is in the majority of cases a change of spasticity to flaccidity with diminution or abolition of the abnormal reflexes except the toe-phenomenon. In exceptional cases this change to flaccidity occurs early in the course of the disease. In some cases the spastic state of the extremities is accompanied by attacks of involuntary spasmodic contractions of the muscles involved, which may become very troublesome to the patient and inca-

pacitate him for work. In some cases such spasmodic attacks may occur also during the phase of flaccidity, as is the case with my second patient (see history below).

Another characteristic of this disease is that the motor impotence never affects the upper extremities to the same extent and intensity as the lower extremities even in the most advanced stages of the disease.

The sphincters are usually intact for a long time and become involved only in advanced stages of the disease. Trophic disturbances are usually present. They appear when the other manifestations are in a state of full development. Atrophy of the muscles and edema of the lower extremities are frequent. Electrical excitability is reduced for faradic and galvanic currents but there are no reactions of degeneration. Cranial nerves are rarely involved, but the pupils have been found to be small and unequal. The latter occurred in cases in which the cervical cord became involved. The duration of the disease varies. Ordinarily it lasts years, but shorter periods have been reported.

To sum up, we are dealing here with a syndrome consisting of a gradually oncoming paralysis of the lower extremities and in later stages also of the upper extremities with ataxia phenomena with characteristic sensory disturbances, *viz.*, paresthesias and analgesias, and finally with change of a spastic to a flaccid state but with preservation of the extensor type of the plantar reflex. Variations in the intensity and in the chronological development of these symptoms may occur. Finally the presence of anemia with all its external characteristics and those of the blood may or may not be present.

In 1913 (Compt. Rend. d. séances de la Soc. de Biol. t. LXXXV., p. 554) in attempting to differentiate subacute combined sclerosis from the classical posteriosclerosis of the tabetic form to which Marie and Crouzon called attention (Rev. Neurol. 1903, p. 326), also of the spastic form,—Dejerine laid special emphasis on the following fact: In both latter varieties there is a so-called tabetic sensory dissociation, *viz.*, an alteration of tactile sensibility with more or less complete preservation of pain and temperature senses, also an alteration of deep sensibilities (position, deep pressure and osseous sensations). On the contrary, in the combined sclerosis of the subacute variety while the deep sensibilities are involved, the tactile sense is intact as well as pain and temperature senses. This difference in the sen-

sory function is dependent upon the difference in the topography of the two affections. In fact, postmortem examination reveals in the disease under discussion involvement of the crossed pyramidal tract and of the long fibers of the posterior columns, *viz.*, Goll's and the adjacent portion of Burdach Tracts, but not of the external bundle of the latter, in which are located the short fibers conducting tactile sense. In the classical forms of combined sclerosis of any of the two varieties the external portion of Burdach's column is always sclerosed and it is precisely the portion which is continuous with the posterior roots in which the sclerotic process commences. In the subacute form the posterior roots are intact, the lesion is spinal and the pathological process commences within both tracts under the influences of some toxic factor. The deep sensibilities are conducted precisely through those long tracts and preservation of tactile sensibility is thus explained.

Recently another case of the syndrome of the long fibers has been reported by Claude and Schaeffer in the *Rev. Neurol.*, No. 9, 1920, p. 872. It is interesting to note that in this particular case the clinical aspect and the pathological findings were similar to those of other authors with but very slight variations, and no anemia was present during the entire course of the disease.

Besides the two forms of the combined sclerosis described by the classics, there is also a tract disease in which the lesion is strictly confined to the pyramidal tract, known under the name of primary lateral sclerosis or *Tabès spasmodique* of Charcot. While in the majority of instances there had been found in addition to changes in the pyramidal tract also very slight alterations in the cells of the anterior cornua as well as some slight changes in one or two of the other columns of the cord (Mader, Minkowski, Dejerine, Spiller and others), nevertheless there is a very small number of cases in which the degenerative changes were found to be confined exclusively to the crossed pyramidal tract. The first intimation of it we find in the writings of Türck (1856). Another case of the same character was reported by Charcot in 1865 (*Union Médicale*). A third case was reported by Hofella in *Wiener Medizinische Wochenschrift*, 1878. The fourth case is that of Morgan published in the *British Med. Jour.*, Jan., 1881. The fifth clear case was reported by Jubineau, in 1883 (*Thèse de Paris*). Finally the sixth anatomo-clinical case was reported by me in *N. Y. Med. J.*, Jan. 6, 1912. There are therefore

in the literature about only six cases which from a pathological standpoint present an exceptionally clear form of primary lateral sclerosis of the pyramidal tracts.

The clinical aspect consists essentially of a gradual development of weakness in the flexors of the extremities with an early noticeable stiffness of the legs which leads soon to a spastic paralysis. The patellar tendon reflex becomes increased, ankle-clonus and the toe-phenomenon are present. This condition persists during the entire course of the disease and finally leads to fixed contractures. Frequently paroxysms of involuntary spasmodic contractions of the affected muscles are in evidence.

The condition is limited to the lower extremities but exceptionally a progressive weakness and excess of myotatic irritability is seen also in the arms. In the cases of the pure type in which no other lesion was found, there was no muscular atrophy, and sensory or sphincter disturbances were totally absent. During the progress of the disease paresthesiæ may be present, such as tingling and numbness, but objective sensory changes are absent.

On the foregoing pages two types of combined degeneration of the columns of the white fibers were considered: One is the classical type and the other the subacute form. A distinct differentiation was pointed out in the domain of sensations, in the course of the motor disturbances, in the absence or presence of other manifestations.

The existence of a subacute form of primary lateral sclerosis has not been mentioned to my knowledge in the literature at my disposal. The two cases about to be described appear to demonstrate such a possibility. The course of the disease, the character of the symptoms are not those of the primary lateral sclerosis described above and still the evidences are in favor of the pyramidal tract involvement. Anæmia was absent as repeated blood examinations were invariably negative. Syphilis was excluded, as the personal and family antecedents were negative in that respect and a Wassermann test of the blood and spinal fluid gave equally negative results. While I have no anatomical postmortem findings to offer, nevertheless the clinical picture suggests an analogous formation and subsequent coalescence of separate small foci within the pyramidal tract such as was mentioned in the subacute combined degeneration (see above). The cases seem to belong to the syndrome of the long fibers but of the long fibers of a single tract.

The cases are as follows:

Case I—J. F., 60 years of age, commenced to notice in January, 1918, some difficulty in walking. Upon examination several months later the patient's gait appeared difficult: he dragged the legs, scraped the floor, made small steps. When seated he had difficulty in crossing the legs. The knee-jerks were markedly increased and there was a slight ankle-clonus on both sides. The plantar reflex was flexor by Babinski's method but Oppenheim's and the paradoxical reflexes were positive on the left side. The striking feature lies in the fact that there was no rigidity in the limbs on repeated observation. Passive and active movements were carried out and without the least resistance. There was no ataxia in the lower or upper extremities. The objective sensations, superficial as well as deep, were all normal. There was no pain or any other paresthetic disorder. The stereognostic sense was normal. The cranial nerves, the pupils and sphincters were all normal. The patient's condition continued unaltered for two years. During the last six months it made considerable progress.

Presently the difficulty of walking is considerable. The knee-jerks are markedly exaggerated, ankle-clonus is distinct on the right side, Babinski's sign is present on the right side. There is no spasticity in either leg. The upper extremities commence to show diminution of power: the grip in both hands is somewhat weak. The biceps and triceps reflexes on both sides are somewhat exaggerated. Objective sensibility, superficial and deep, are normal all over the body. There is no ataxia in lower and upper extremities. The sphincters, cranial nerves, pupils are all normal. A general blood examination shows. H. 80 degrees; W. B. C. 7,800; R. B. C. 4,920,000. There are no abnormal red cells.

To sum up, we are in presence of a case of paraplegia of three and a half years' duration in which are evidences of motor tract involvement but without spasticity in the affected limbs. The lesion apparently does not extend to other portions of the white matter. Contrary to what we find in the few published cases of the classical primary lateral sclerosis the paraplegia is not spastic.

Case II—M. L., 56 years of age, began to notice the present disorder in February, 1918. After standing in a very cold room for several hours, he felt a general chill and a numbness in the right leg. On the following day twitching appeared in the same leg. It would

occur in spasmodic attacks. Whether walking, sitting, or lying the patient suffered muscular contractions. Several times he fell down on the street. The leg became weak and he would limp in walking. About two years later similar muscular contractions and weakness appeared in the upper extremity. The paretic condition of the leg progressed very slowly, but the muscular spasm in the leg subsided considerably and disappeared in the arm. After an interval of several months the spasm has reappeared lately.

The present condition is as follows: The right leg is paretic and the action of the individual muscles can be easily overcome. There is no spasticity whatsoever: Active and passive movements are executed without the least difficulty. The left leg is but very slightly involved: It is only lately that the patient observed a slight awkwardness on the left. The patellar tendon reflexes are markedly exaggerated on both sides. Ankle-clonus is slight but present on the right and very slight on the left. Babinski and paradoxical reflexes are distinct on the right side. The abdominal reflex is diminished on the right and the right cremasteric reflex is abolished. The right arm and hand are weaker than the left. There is no ataxia in either of the extremities. Sensations, deep and superficial, the stereognostic sense are all intact in the upper and lower extremities. The cranial nerves, sphincters, are normal. There are no trophic disturbances. The spasmodic contractions in the arm and leg became quite pronounced. The flexors of the hand would suddenly become rigid and the entire arm would be drawn up and backwards. In the lower limbs the leg would suddenly become flexed and the thigh raised. The involvement of the left is but extremely slight: the patient complains only of a very slight difficulty in walking or climbing the stairs, but there are no muscular spasms and there is no difficulty in standing on the left foot. The left arm is not at all involved.

The blood examination shows no evidence of anemia: H. 85, R. B. C. 4. 120,000; W. B. C. 7850. There are no abnormal red cells. The Wassermann test of the blood and spinal fluid is negative. There is no history of miscarriages and the patient shows no evidence of an old luetic infection.

To sum up, we have here a case of over three years' duration with a unilateral paretic condition commencing to involve also the opposite leg and one upper extremity. Like in the first case the state of reflexes indicate a motor tract involvement, insidious in onset,

gradually progressing, but at no time was there any degree of spasticity in the affected limbs. Contrary to the first case, the disorder commenced here with spasmodic contractions in the muscles of the limbs which were to be involved. In both cases there was total absence of sensory disturbances or of abnormal sphincter manifestations. The disorder was exclusively motor from the very beginning and during a period of three and a half years.

The two cases herein described are clinical examples of motor tract invasion. They are analogous to the few cases mentioned in the literature under the caption of primary lateral sclerosis with this difference that spasticity which is the most conspicuous manifestation of the latter is totally absent here. The affection did not commence nor continue as a myelitis, or multiple sclerosis. While it is a primary lateral sclerosis, nevertheless it differs essentially from the classical spastic paraplegia. The course of the development of the symptoms indicates that there is a considerable integrity of large portions of the motor tract because of absence of rigidity and yet the lesion is sufficiently irritating in character to produce the increased knee-jerks, ankle-clonus and especially the extensor type of plantar reflex very analogous to that found in the subacute degeneration of the posterior or postero-lateral columns described above. It seems rational to place the affection under discussion in the category described under the title. The syndrome of the long fiber of the spinal cord is due to a subacute degeneration. It is justifiable I believe to consider three varieties of involvement of the long fibers: (*a*) posterior, (*b*) postero-lateral, and (*c*) purely lateral. The two cases described here are examples of the syndrome of the long fibers solely of the lateral motor tract.

DIFFERENTIAL DIAGNOSIS OF RADICULITIS AND NEURITIS

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It is strange that so little attention was paid to the spinal roots in the earlier days of neurological study, as these organs in traversing the arachnoid space and the meninges to reach the intervertebral foramen are subjected to any disease process which affects the pia-arachnoid; and furthermore are readily traumatised when there is an injury to the spine. And yet even the epoch-making work of Nagotte in 1893, concerning infiltration of the spinal roots by the granulomatous process which precedes *tabes dorsalis*, received very little attention, and it was not until Déjérine described the syndrome of radiculitis that general attention was brought to bear upon these organs.

Although localized inflammation of the spinal roots had already been found post mortem, in 1896 by Dejerine and Thomas, and although the syndrome radiculitis had in the meanwhile become recognizable and has been intensively studied principally in Dejerine's Clinic ever since, very little attention has been given it in America except on the part of a few neurologists. In the presentation which follows I have permitted myself to extend somewhat the very strict interpretation by Dejerine of the term radiculitis. Although he later admitted that *tabes dorsalis* was merely the consequence of degeneration of the posterior roots he did not include this syndrome in that of radiculitis. He also excluded those affections of the roots caused by neoplasm or productive inflammation, and he did not consider at all the post-ganglionic implication of the trunk of the nerve by the spread of bony or articular inflammations or the pressure upon the nerve trunk by narrowed canals (*neurodicitis*). In this he was entirely justified; but as clinically neuronal irritation of the intervertebral foramen is as regards the neurological signs indistinguishable from radicular irritation itself, I have taken it upon myself to include in the consideration of

radiculitis the tronculitis caused by osteothritis of the spine. Furthermore, I have not excluded disorders because of their symmetry, progressiveness, nor do I see reason to refuse to accept in the radicular syndrome cases where the sphincters are involved, when it is by lesion only of the lower sacral roots. Some of the roots have a course which is quite long, for the spinal cord ends at the lower border of the first lumbar vertebra, while the lower roots emerge only from the sacral foramina, although only in the smaller portion of this course are they bathed in the cerebro-spinal fluid, the meninges having become reflected upon them as we see it in the cauda equina.

Symptomatically affections of these organs superficially resemble peripheral neuritis, with which they are often confused in the absence of proper neurological knowledge, which in this matter seems not to prevail widely; for in the latest edition of a well-known Textbook on Neurology radiculitis is not even mentioned in the index, and there is no discussion of the syndrome in the text.

Hence, it should be of service to search systematically for the chief differences which enable us to know when we are dealing with the roots themselves, and when the peripheral nerves are at fault.

Both the terms radiculitis and neuritis are misnomers; as inflammation is not necessarily present in either of these clinical states.

The name *neuritis* was given because of the occurrence of pain, which led to the assumption that inflammation in the usual sense was the cause. Early studies of the pathology of nerves in this state seemed to confirm this in that there was a disintegration of the nerve tissue; but this, when unaccompanied by serous exudates or infiltration of white cells and when not followed by proliferation of connective tissue, cannot be legitimately entitled inflammation in the usual sense. What really happens is a *degenerative process* which causes heightened irritability of the neurifibrils.

These remarks are equally true of the condition of the spinal roots known as radiculitis; for the syndrome may be caused by pressure ~~there~~. Many cases of so-called neuritis are merely instances of pressure also.

RADICULITIS may be defined as a clinical syndrome the anatomical basis of which is an interference with any portion of a spinal nerve between its emergence from the spinal cord and its leaving the intervertebral ganglion to constitute the peripheral nerve. That is to say

that it is a pre-ganglionic affection, and may affect either the sensory or the motor root or both.

To post-ganglionic affections is given the name of *peripheral neuritis*, and these must necessarily implicate both sensory and motor constituents of a mixed nerve, although either of these may be functionally impaired in so slight a degree as to be clinically inconsiderable, as for instance in the case of lead poisoning, which is believed to affect the sensory far less than it does the motor elements.

In both radiculitis and neuritis it is usually PAIN which leads the patient to seek advice; although in some cases, especially of anterior root disease, weakness and atrophy may be the only complaint. In neuritis pain is always accompanied by *tenderness*; and this is more especially so of the *deep tissues*, although in some cases of polyneuritis cutaneous hyperesthesia may for a time be excruciating. In the less obvious cases firm pressure is required to elicit this sign. It is a most important one and is serving as one of the chief differentia from radiculitis, in which there is no increase of tenderness, but on the contrary usually a decided diminution of the sense of pain on firm deep pressure. The explanation of this is that interference with a root is distal to the trophic center in the intervertebral ganglion. Hence there is no deterioration of the peripheral nerve, but merely an interruption of conductivity after the impulses reach the affected portion of the root.

It is true that in some cases of actual inflammation of the root there may appear to be an increase of sensitivity to painful stimuli; but that is due to erethism of the inflamed tissue; it is of the same order as that found in meningitis. A valuable sign is that first described by Dejerine consisting of complaints of pain shooting into the pelvis, abdomen or limbs, according to the roots affected when the patient strains as in coughing or sneezing.

Interference with conductivity of sensory impulses is present in both conditions. The differentiation has to be made by the distribution of the loss. To do this the distribution of each peripheral nerve as well as the overlap of contiguous nerves must be known. Particularly in the arm, this does not correspond with the zone of distribution of the spinal root. The anesthesiæ may be exceedingly variable from day to day in cases due to radicular pressure; especially when that is caused by tubercular infiltrations or sy-

exudates; for in both of these the reparative processes as well as the vascularization are most variable. This is also the case in some instances of tumor pressing upon the roots, although as a rule the symptoms are progressive with intermissions of only short duration.

The *different modalities of sensation* may be affected to different degrees. This may reach the extent of simulation of syringomyelia, more especially in tubercular disease of the meninges, where marked loss of pain and temperature conductivity may be scarcely accompanied by any impairment of the senses of touch and attitude. Strangely enough, the contrary is usually the case in syphilitic radiculitis, where, before there is any considerable loss of pain and temperature sense, the attitude sense may be so impaired as to lead to an ataxia of locomotion.

The same syndrome may occur for a time in peripheral neuritis; but an increase of the deep pain sense in the latter enables the diagnosis to be made even without the presence of motor enfeeblement and atrophy, which usually occur, along with the trophic changes known as glossy skin, and brittleness of the nails. This is the condition known as pseudo-tabes.

Motor weakness and atrophy occur in both neuritis and radiculitis provided the anterior roots are implicated. This is particularly shown in meningeal tuberculosis, in which for a time it may be the only sign. But even in the syphilitic radiculitis which leads to true tabes dorsalis there occurs some degree of motor impairment through the anterior roots being affected also. The speedy repair of this by absorption of exudate and regeneration of fibers often prevents its detection except in the case of the motor nerves of the eyeball, where the symptom of diplopia draws attention to it. It is fortunately now less common to have this empirically treated by prisms without investigation as to its cause and the direction of treatment to that. (See Path. 6, Cranial Nerve in Tabes Dorsalis, Am. Jour. Med Soc., April, 1910.)

In the limbs the muscular atrophy may lead to *deformity* of the joints through contracture of the tendons, unless precautions are taken both in radicular and neural affections.

In the *motor sphere* the distinction between neuritis and radiculitis is again to be made by knowledge of the distribution of each root and peripheral nerve. The exact distribution of all the roots of the brachial plexus is not completely known, while the distribu-

tion of the peripheral nerves is well understood. Investigation of wounds of the plexus and roots during the war have permitted a delimitation of some doubtful distribution, more particularly of that of the 6th and 7th cervical roots. These have been embodied in a new schema of the plexus now exhibited, which shows that the triceps receives fibers only from the 7th root. The supinator longus is supplied by the 6th root only, whereas both are supplied by the musculo-spiral nerve.

Hence if only one of these muscles is paralyzed from a lesion in the neck, we can affirm this to be radicular and not peripheral, and if surgical intervention is indicated a dissection of the plexus will be avoidable while a laminectomy may be required.

The *reflexes* furnish no differentiation between radiculitis and peripheral neuritis, as they are impaired in both conditions to a degree corresponding with the gravity of the lesion and its topography.

Trophic changes as aforementioned indicate peripheral disease except in the case of perforating ulcer and Charcot joint, which may occur in tabes dorsalis; but even these are regarded as being provoked by persistent trauma tolerated by the patient because of his anesthesia, which prevents the forced rest which pain would otherwise compel. Modification of hair growth and of sweat production may occur in radiculitis also, this because the vaso-motor fibers forming the rami communicantes run in the spinal root. These changes never reach the extent seen clinically in peripheral neuritis where they are most marked peripherally whereas in the former they are limited to the distribution of the root affected, similarly to what is seen in Herpes zoster.

PATHOLOGY

The pathology of the two conditions offers a striking contrast. The common sources of radiculitis are *syphilis* and *tuberculosis*, which almost never affect the peripheral nerves directly. In each case there is a pressure on the roots by the exudate which collects in the narrowing meningeal sheath during its reflection upon the spinal root as it passes toward the intervertebral foramen. Indeed, it is possible that the symptoms are less due to inflammation than to strangulation proper.

In neuritis, a *strangulation* pathogen also plays a part while a

peripheral nerve is passing through a bony canal, as in the aqueduct of Fallopius, facial paralysis being perhaps the commonest of all, or through an aponeurosis such as the fascia lata.

But an even more important pathogen is *toxin*, for this may affect all the peripheral nerves and form the clinical picture of polyneuritis (see my paper, Polyneuritis of Infectious Origin, Medical Record, October 31st, 1921), which may even reach the degree of total paralysis. Fortunately the cranial nerves and diaphragm usually escape, although in the alcoholic variety the vagus may be so affected as to cause death.

The toxin from a *septic focus* may produce a neuritis, usually mild, often localized to the area through which the lymphatics drain the abscess, as then toxins pass up the nerve sheaths of the neighborhood. This mechanism has been experimentally proved. Neuritis of a single nerve of an individual too may occur in consequence of the general diffusion of toxin.

That only a single nerve should be attacked by a process which is systemic in its disturbance is to be explained by local differences in the tissues around that nerve. Instances are afforded by the effects of previous trauma or disease and by interference with circulation through disturbance of vascular supply. But it is not always necessary to have recourse to these explanations, for the anatomical surroundings of certain nerves render them particularly vulnerable to pathological processes. The result is that quite a mild inflammation causing only a slight swelling is capable of producing severe functional impairment of the nerve.

Again, while spinal roots are leaving their ganglion and passing through the intervertebral foramen, they are once more subjected to the risk of compression either by a fibrositis of the lining of the canal or by bony compression through the giving way of the vertebra as a result of osteoporosis.

Many sciaticas and brachialgias are believed to originate in this region. The name neurodocitis has indeed been given to an inflammation produced in this way. Others have called the condition funiculitis.

Another locality where a nerve is liable to be affected is the situation where it penetrates the aponeurotic sheaths of the muscles of the deep fascia. Meralgia parestheca is the best known form of this condition.

While toxi-infectious conditions may be responsible for any of the foregoing syndromes, yet they do not seem to be essential; for in the majority of instances, where a neuralgic attack originates in one of these situations, there is no evidence whatever of the more acute type of intoxication.

There is, however, in many instances evidence of *disordered metabolism*. This disorder is of the type which our predecessors called lithemia and which had within our own memory a great vogue as uric acid diathesis. The present writer attributes the majority of cases of this type to an impaired protein metabolism, for such patients show other signs attributable to metabolic disorder either at the time of examination, subsequently or in their former history. Furthermore, their antecedents and collaterals show numerous instances of the same disorder. The most conspicuous of these are increased arterial tension, nephritis, migraine, so-called chronic rheumatism, apoplexy. Patients of this kind have been called by French writers *arthritic*. The writer has found that cases within this category are rapidly and often permanently benefited by a diet which effects an improvement in the metabolism through prevention of protein overload, by favoring adequate heat production by means of sufficient carbohydrates and by facilitating tissue interchange through the provision of a sufficiency of fruit salines, whilst of course preventing all possible causes of metabolic stagnation, such as constipation, inactivity whether bodily or mental, and compensating any insufficiencies of glandular action when these are present. Treatment on these principles has benefited most of the cases of neuralgia which local treatment has failed to benefit and which are not attributable to lesions of mechanical or infectious origin.

Another factor which enters into the pathogenesis of mild neuritis and neuralgia is *endocrine*. Empirically many observations have been made of disappearance of neuralgias through the giving of thyroid gland. I doubt very much if this is a specific endocrine reaction. It seems more attributable to the betterment of metabolism whereby detoxication is favored. Of this we have warrant in the experimental work which has shown how athyroidia increases the effect of toxins, and how giving the thyroid substance decreases it. A scientific study of the effect of endocrine substance is much to be desired both in states where endotoxins seem to be responsible, and perhaps also in cases of chronic infection.

A clinical syndrome intermediate between radiculitis and peripheral neuritis is induced by the compression or irritation of the roots as they pass the intervertebral foramen in a state of arthritis. Although we are really dealing with a peripheral neurodocitis, yet the distribution of each nerve is that of the root which constitutes it, for not even the posterior primary division has yet left it. Hence, the differentia depending upon the distribution of separate bundles are not yet at our disposal.

TREATMENT OF RADICULITIS

Necessarily a difference of treatment follows this difference of pathology. Radiculitis if *syphilitic* must be treated by arsenobenzol preparations and mercury as well as by correct hygiene.

Tubercular radiculitis requires the enforced rest of an immobilizing apparatus, along with abundant nutrition, air and light, and sometimes surgical measures.

If a *neoplasm* is the cause it must be removed surgically, or dealt with by the X-ray. One of the most obstinate affections of the root although it is in reality already a peripheral nerve is that consequent to *arthritis* of the spine; for in the first place the arthritis is a difficult matter to deal with even when secondary to focal sepsis and when this can be removed; for in spite of this the osteopathic results of the arthritis may be permanent and a compression neurodocitis persist. In the second place, this condition may go on for years without diagnosis, as it is too readily attributed to lumbago, rheumatism, or sciatica and treated empirically and futilely.

A *jacket* relieves some of these cases markedly; but it seems to the writer that vertebral stretching in the early stages might prevent a distressing future incapacity.

In radicular sciatica all measures may fail and it may be necessary to treat the root envelopes by the injection of normal saline through the caudal foramen.

TREATMENT OF NEURITIS

Neuritis must be treated in accordance with its cause, *i.e.*, the detection and elimination of mineral or other poison, when the nerves will regenerate spontaneously. Local sepsis must be sought for and eliminated. In neurodocitis, local application of heat, radiant energy, electrical ionization are sometimes highly beneficial. Massage is nearly always an advantage if properly given.

The *metabolic* condition I look upon as of supreme importance in many of these cases. Even the most obstinate sciaticas may yield in a week or two to carefully considered metabolic regulation. Where there is evident endocrine abnormality, internal secretions may have to be administered also.

The *mental disturbance* due to pain and lack of sleep must be dealt with also; but one cannot protest too strongly against the indiscriminate giving of anodynes and narcotics; for these disturb metabolism, and interfere with repair; and in a long continued case they produce addiction, which is a most troublesome tendency to get rid of. For restlessness and insomnia the best measures are physiotherapeutic, especially hydrotherapy.

CONCLUSION.—Thus we have shown that these two conditions, which symptomatically seem to resemble one another so closely, when they are properly analyzed and differentiated, contrast in nearly every particular, in the nature of the sensory augmentations and losses, in the distribution of muscular weakness and atrophy, in the trophic disturbances, and, above all, in the pathology and treatment which is required. Hence the importance of the differential diagnosis of these conditions cannot be too strongly emphasized.

SYNDROME	NEURITIS	RADICULITIS
<i>Definition</i>	Irritation of peripheral nerves.	Irritation of spinal root.
PATHOGEN		
Toxin	The usual cause.	Doubtful.
1. Chemical poisons: alcohol or metals, especially arsenic or lead.	Frequent.	Doubtful.
2. Diffuse bacterial poisons aside from local exudation, especially diphtheria and influenza.	Occasional.	Doubtful.
3. Metabolic poisons: Lithemia, Arthritis.	Occasional.	Doubtful.
4. Endocrine unbalance.	Possible.	Doubtful.
5. Focal infection:	Occasional.	Doubtful.
Tuberculosis.	Scarcely.	Frequent.
Syphilis.	Rarely.	Commonest cause.
Neoplasm.	Occasional.	To be suspected.
Physical agencies.		
Cold, trauma, etc.	Occasional.	Trauma.
Concomitant of arthritis.	Of the neighborhood.	In the spine.

SYNDROME	NEURITIS	RADICULITIS
<i>Definition</i>	Irritation of peripheral nerves.	Irritation of spinal root.
PATHOLOGY	Usually degenerative from toxicosis, by strangulation, by neuritis.	Often inflammatory; by strangulation, by inflammatory or neoplastic compression.
ONSET	Often abrupt.	Insidious.
SYMPTOMS:		
Pain.	Except in plumbism or pure motor N.	Usual when posterior root is implicated.
Tenderness.	Characteristic, especially of deep tissues.	Absent or minimal. Dejerine's sign.
Conductivity.	Impaired.	Shooting in straining as in coughing and sneezing.
Hyperesthesia.	Except in early stages, irregularly, progressive.	Impaired.
Sensory dissociation.	Not usual, but sometimes pseudotabetic, but never truly of tabetic type.	Except in early stages, irregularly, progressive.
MOTOR WEAKNESS	Usual.	Occasionally of syringomyelic type in tubercular R. Of tabetic type in syphilitic R.
ATROPHY	Severe, except in mild cases; of long duration.	When anterior root affected, best marked in tubercular R.
DEFORMITY	Contracture and stretching of tendons and ligaments.	Less evident except in tubercular R.
REFLEXES	Impaired except at first.	Contracture and stretching of tendon and ligaments less marked.
TROPHIC CHANGES	Early and widespread.	Impaired.
EXTENT	According to distribution of nerve affected.	Circumscribed.
	In polyneuritis more marked peripherally.	In the segmental distribution of the roots affected.
DIAGNOSIS	Increased deep tenderness with or without hypæsthesia. Syndrome conforms to distribution of peripheral nerves.	Hypæsthesia both cutaneous and deep. Syndrome conforms to distribution of roots.
DIFFERENTIAL DIAGNOSIS	From trauma, osteitis, arthritis, myositis, meningitis, poliomyelitis, encephalitis, myelitis.	From the same.
PROGNOSIS	Highly favorable upon removal of cause.	Unfavorable in proportion to destruction of sensory fibers. Favorable as regards motor fibers except when dense cicatrices have occurred.
TREATMENT	Elimination of the pathogen. Metabolic regulation. Physical agencies to stimulate local nutrition.	Removal of the pathogen. Rest of the regions affected.

THE BUSINESS OF TODAY

ECONOMICS AND STANDARDS vs. THEORY AND MEDICAL
ETHICS IN THEIR RELATION TO THE PROFESSION
OF MEDICINE

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Seattle, Wash.

It has been said that there is nothing new under the sun, but there is still the unsolved problem—HUMAN NATURE. If it were not for this problem, there would be no reason nor legitimate excuse for presenting a plea for standards, for they have been in use since time immemorial.

Their necessity has been recognized in all ages, even in the time of Cain; and as the relationship of man upon this earth has become more varied, the use of standards has multiplied, until today our complex modern life is, through the application of scientific knowledge, creating an age of standards.

Universal education, moreover, is rapidly awakening the majority of humanity to a realization of the value of standards by teaching people; that truth is determined and verified by the intelligent use of mechanical appliances in co-operation with natural laws.

In the active practice of medicine, however, as in no other field of human endeavor, the practical, everyday application of standards in ascertaining and verifying the truth has been and still is constantly overlooked. The result: Waste of time, money and energy, combined with—in spite of the lauded humanitarianism of the profession of medicine—an absolutely unnecessary increase in the amount of human pain and suffering.

This indifference of the profession of medicine to standards also destroys confidence in and respect for the science of medicine; yet it is maintained in spite of the fact that instinct and logical reasoning must convince every one, even the physicians themselves, that there is no principle of justice, ethics or economics which will sanction the training of men to attain maximum efficiency in the science of preserving life, and then condone the destruction of life and health by demanding that men so trained, who must sell their services to the laity in the open market with necessary profit, shall not

demonstrate either individually or collectively, by means of standards, the value of efficient scientific service.

The indifference of the medical profession to standards is no doubt largely due to the fact that the profession is still blindly following an antiquated code of MEDICAL ETHICS, instead of a code of ETHICAL ECONOMICS. The code of medical ethics is antiquated, because it absolutely prevents the placing of responsibility for inefficiency by forbidding ethical advertising,—demonstrations to the laity which will enable the laity to distinguish between standard and substitute in the purchase of scientific medicine and surgery.

Every physician is daily forced to recognize the fact that every individual, be he ignorant or intelligent, has the final option of purchasing or selecting the means by which he shall protect his life and health. So it is only a question of time before evolutionary advancement will finally force all physicians to realize that it is not only to the detriment of humanity, but to their own detriment, both as individuals and as members of a profession, for them to overlook the duties of science and the FUNDAMENTAL OBJECT of universal education, which is to instruct the intellect, not of a select class, but of every member of society, so that each individual will use his intellect to differentiate between standard and substitute, truth and falsehood.

In the profession of medicine this can be accomplished by the use and ethical advertising of standards, in lieu of "Personality," for it is not *Personality* but STANDARDS that are absolutely essential to intelligent reasoning and efficiency of service. Admittedly, however, PERSONALITY is often the setting necessary to make brilliant and bring out the value of intelligence—the cultivation of Personality as a selling asset to intelligence, however, is not the problem of this paper. The object of this paper is to demonstrate to the profession of medicine, by presenting a Standard Urological Examination, why, in compliance with the duties of science, standard examinations should not only be adopted, but can be, without difficulty and with profit, adapted to the active practice of medicine.

It may be well to define at once science and its duties, lest there be some misconception as to the motive that inspires this article and the mind of the reader be, to his own detriment, biased thereby:

Science is Knowledge co-ordinated, organized and systematized so

as to be made useful to man. Its duties are patent. They are to substitute facts for theories, demonstrations for impressions, and to bring the minds of all men into agreement by furnishing them with universal and necessary principles. Otherwise Science cannot be made useful to man.

In turn, Universal and Necessary Principles can only be furnished man by means of True Education, which is the instruction of the intellect in the laws of Nature, in which we include not only things and their forces, but *men* and *their ways*, and the fashioning of their will and emotions in an earnest and living desire to move in harmony with Nature's laws.

To the thinking, the above definitions must make it patent that this article is but an acknowledgment on the part of one physician who, forced to comply with the law of self-preservation, has at last seen the advisability of renouncing the habit of slavishly and blindly following precedent, also many of the antiquated customs and traditions of his profession, and who, in deference to Science, has bowed his head in obedience to not one but all of Nature's laws.

Here also the writer deems it advisable to define "A STANDARD" in order that all arguments may be based upon a definite premise. The definition presented is taken from the Century Dictionary:

"A standard is that which is set up as a unit of reference; a combination of conditions accepted as correct and perfect and hence used as a basis of comparison."

In accepting this definition it is recognized that true standards can only be created by having a definite ideal or object in view; the ideal or object in turn must be based upon a correct interpretation of Nature's laws; then the method of procedure should, through the application of the principles of efficiency, be so co-ordinated, organized and systematized that the ideal or standard can not only be attained but be MAINTAINED.

For example, in striving to formulate a Standard Examination of the Male, every physician is confronted with the following anatomical and biological facts:

Fact 1. Every portion of the genito-urinary system of the male is directly connected with the urethra (see Figs. 1 and 2), and on account of this direct connection micro-organisms can invade and attack any part of this system.



FIG. 1

The male genito-urinary organs removed in toto from the body.

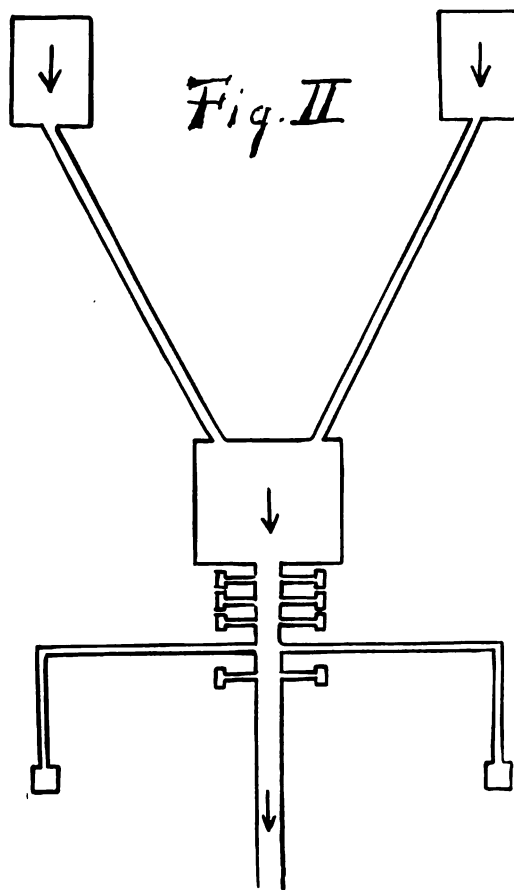


FIG. 2

Diagrammatic drawing identical with Fig. 1. used to clearly illustrate to the laity the fact that all parts of this system are directly connected on with the other.

Fact 2. The gonococcus, one of the principal organisms which invades this area, is, like other bacteria, microscopic in size; that is, it cannot be seen with the naked eye. The germ has to be magnified a thousand times to look the size of the head of a pin. Compared with this organism, the male genito-urinary system is very extensive, especially when the surface area of the numerous mucous follicles, urethral glands, Cowper's glands, prostate, seminal vesicles, vas deferens, testes, bladder, etc., are considered.

Fact 3. Because of the direct connection of all parts of the genito-urinary system with the urethra, micro-organisms may become scattered over or localized in any part of the system, or they may be scattered in the urine and other secretions of the genito-urinary organs.

The co-ordinating, organizing and systematizing of these three facts at once brings into view the ideal or object to be sought in creating a standard urological examination in the male. It is that there shall be conducted an examination of the entire genito-urinary system so thorough as to positively prove the presence or absence of a single germ, or of any microscopic pathological condition.

In order to comply with the principles of efficiency and attain and maintain this ideal, it becomes necessary that the physician should, in constructing a standard urological examination, recognize the practical as well as the theoretical value of the following psychological and economic facts:

Fact 1. THE EXAMINATION MUST BE ABSOLUTELY ACCURATE. This accuracy can only be attained by obtaining the maximum amount of scientific evidence through employing all the means known to science—at our present state of evolution—for proving or disproving the presence of micro-organisms and explaining the character of any pathological condition which caused the patient to seek medical or surgical aid.

Fact 2. (A) The minds of physicians, as of all men, are compounded of the same elements, held subject to the same laws of action; and the knowledge that any one of them possesses comes, as it does to every other human being, through the *ordinary* channels of the senses, not through any supernatural power.

(B) In the search for knowledge in every branch of society, including medicine, science has produced innumerable mechanical aids to increase the efficiency of the senses of man.

Therefore, if everything else is equal, the mind of man will gather knowledge in proportion to the number of mechanical aids employed and the accuracy with which these and all his senses are used.

Fact 3. The examination must be made popular:

(A) By recognizing that the majority of people are no longer impressed, much less satisfied, with diagnoses bristling with scientific terms which, though technically correct, for them have only theoretical value.

Educated to think, mankind is commencing to demand, when it deals with the medical profession, that it receive definite and comprehensive answers to the following questions:

1. Is this disease, or injury, dangerous?
2. Wherein is it dangerous?
3. Can it be cured?
4. To what extent will it affect my social, civic and economic efficiency, and my HAPPINESS?
5. Can my efficiency be completely restored?
6. If not, what can be done to compensate for any resulting inefficiency?
7. What proof have I that you, the physician, will render efficient service?
8. What will be the approximate, if not the exact, cost in time, money and energy?

The examination can be made popular:

(B) By demonstrating—ADVERTISING—to the laity that these questions not only can be, but will be answered by scientific medicine.

The laity, Mr. Doctor, realizes that it is spending its money in order to receive this information, and should, in all justice, receive full value for money expended. Intuitively, mankind today is using these answers as a gauge whereby they may judge the efficiency of scientific medical service. The great majority instinctively feel that if the physician can scientifically and efficiently treat a disease, he should be able to answer these questions, and that if he is just, sincere and honorable, he will try to answer them.

Expressed in other words, instinct tells mankind that a physician is a true physician, a scientist, only when he does answer these questions; for he then complies with the duties of science, which are to substitute facts for theories, demonstrations for impressions,

and to bring the minds of all men into agreement by furnishing them with universal and necessary principles.

(C) In endeavoring to make the examination practical and popular, not only should the physician not overlook the fact that the methods employed in making an examination should be co-ordinated, organized and systematized, but also immediate, reliable and accurate records of the findings must be made, with the object in view of so reducing the costs of a scientific examination as to place it within the purchasing power, not of the select few, but of the majority.

At the same time it is imperative that one should also bear in mind that the physician or physicians making the examination must receive adequate compensation for their work, for it is an economic axiom that in any walk of life efficiency, even if attained, cannot be maintained, unless over and above the cost of production, there is adequate profit. And there is nothing unethical in physicians, if they will demonstrate why they cannot be an exception to this axiom, insisting that they be compensated for their labors.

Based upon the accepted definition of a standard, a scientific medical or surgical examination is one that will furnish the maximum amount of true knowledge of any organ of the body or system of organs and the relation of other parts of the body thereto, and produce this knowledge so co-ordinated, organized and systematized that the exact workings or functioning of the organs or system of organs and the causative factor of any defect can be ascertained at the minimum cost in time, money and energy to physician and patient.

Essential to the adoption, intelligent use and economic application of a standard medical or surgical examination is the creation of a correct mental attitude toward the subject in hand.

CREATING THIS MENTAL ATTITUDE, OR, RATHER, CONTINUING THE
ATTEMPT TO CREATE SUCH AN ATTITUDE

Mr. Doctor! Remember!—and this fact will bear constant repetition—that the minds of all men are compounded of the same elements, governed by the same natural laws, and the knowledge that any one of them possesses must come, as it does to every other human being, through the use of not one, but all of his senses;

that the physician is, in spite of custom, tradition and his code of ethics, a human being, so is no exception to Nature's laws governing the mind. Therefore, in proportion as he uses not one but **ALL** his senses, and **THEN** the mechanical aids thereto; for instance, in the profession of medicine, the stethoscope, microscope, X-ray, laboratory with its tests, etc., in that proportion will he obtain the maximum amount of corroborative evidence that will permit him to make true deductions of practical value, and so aid the advancement of civilization.

In other words, a standard examination demands that there be applied, in order to obtain the maximum number of true concepts (corroborative evidence) as to the existing condition of each and every organ examined, not only one of the special senses, but all the senses,—the senses of sight, hearing, smelling, tasting and touching—as well as all the mechanical aids that will increase the efficiency of these senses. That is, these senses and the mechanical aids thereto should be used to ascertain not merely the physical condition of the organs examined, but their power to perform their functions under the various conditions they are likely to be subjected to in the individual patient. That the methods of applying not only all the senses, but the mechanical aids thereto should, moreover, be so co-ordinated, organized and systematized that there will be expended the minimum amount of time, money and energy necessary to the production of a maximum amount of true knowledge, which knowledge will be in such a form that it can be immediately applied and will produce practical results—will restore the patient to his former social, civic and economic efficiency, or at least show him how to compensate for any resulting inefficiency, so that he may thereby obtain that for which all men seek—**TRUE HAPPINESS**.

It is a psychological axiom that a scientific knowledge of existing conditions comes with the ability to see things as they are and tell of them as they appear, not as one would like to have them, and can only be obtained by the accurate use of all the senses *unbiased* by the emotions. The true Scientist and the Practical Humanitarian have always in mind, lest they become mere theorists, that it is a human failing to think one knows because he is sure he feels, and to become firmly convinced because strongly agitated; so they keep their minds free and clear, like the antennæ of a wireless station, ready to receive unaltered each and every sense impression.

Cognizant of this human failing, and knowing that man's intelligence is often impaired by the emotions when these are untrammelled and unrestricted, the law has made it a criminal offense against justice for either judge or jury to permit preconceived evidence to bias the judgment.

In spite of the tradition that presupposes that a physician is invested with holy, divine and empiric powers, the brain of the physician *does not* differ from that of other human beings; so it is as criminal for the physician as it is for judge or jury (if not more so), if the physician would be fair, just and scientific in making his diagnosis, to bias his mind by preconceived evidence as to the findings of the case, for upon the correctness of his diagnosis—the interpretation of his sense impressions—may depend not only the health and future happiness of the patient, but even his life.

It is this psychological fact that dictates that in order to make a standard examination practical, the first step to be taken by the examining physician is to at once instruct the patient that he, the patient, must not give the name of any physician from whom he may previously have received treatment, or the opinion expressed by other physicians regarding his case. Full compliance with this psychologic law also demands that prior to making a clinical examination, no history or symptoms, not even the subjective symptoms, are to be noted, the history taken at this time being limited to such symptoms as cause the patient to seek medical or surgical advice, and how and to what degree his symptoms affect his social, civic and economic efficiency, and his HAPPINESS.

To illustrate: A patient presents himself. After a polite and tactful greeting he is at once spoken to in substance as follows:

DOCTOR: Why did you come to see me? Now listen! I do not want you to tell me what is the matter with you! If I know my business I can tell you! In fact, it is for such information, is it not, that you seek my services? All I want to know at present is, for instance, have you pain?

PATIENT: Yes, in my left kidney.

DOCTOR: Does it interfere with your work?

PATIENT: Yes.

So the history taken is limited to the following notes:

The patient states that he has pain in his left kidney on average of once a week, pain lasting from five to six hours and often so

severe as to interfere with his work and cause him at times to absent himself from his labors or vocation.

This much history, the character of service the patient seeks, must be taken, otherwise the questions that the patient will ask, or instinctively feels he should ask (as previously listed on page 7), cannot be intelligently answered. As to the question, why one should take even this slight history, an apropos answer is to be found in the following quotation from Seneca, who said: "If a man does not know to what port he is sailing, no wind is favorable unto him."

No other subjective or objective symptoms or history are taken. If a more detailed history and a history of the subjective symptoms is absolutely necessary in order to make a diagnosis, this information may be taken (in obedience to the psychological axiom) AFTER, not before, the clinical examination is completed. This necessity, however, arises very, very infrequently and in a vast majority of instances a detailed case history that costs so much in time, money and energy can be dispensed with. ECONOMICS!!

Voluminous history taking, as is today advocated by standard hospitals, prior to the making of a clinical examination, is but an inherited, antiquated procedure that had its value in bygone days when sophistry, alchemy, superstition, etc., were the armamentarium of the physician. Today these should be discarded for the scientific clinical methods and mechanical aids which have so greatly increased the efficiency of the senses; for there is no denying that preconceived concepts not only impair, but bias the intellect and lead to the infrequent use of the special senses, thereby causing the efficiency of the senses to be impaired instead of being made keen, alert and accurate by intelligent training and incessant practice. In fact, under such circumstances, even if the impressions are clearly conveyed to the brain, confused by preconceived concepts they are very frequently misinterpreted, with the result that the physician is unable to see the physiological and pathological condition of the patient as it really is, which he must do if he is going to make scientific logical deductions that will possess practical value.

The economic value of this method of procedure every physician will at once appreciate if he will devote a little energy and exercise tact in explaining in an intelligent and comprehensive manner to the patient why the adoption of this method of procedure in making a diagnosis increases the physician's scientific efficiency. Such an

explanation, based upon the arguments here presented, combined with the physician's ability to, without taking a history, not only tell the patient his symptoms, but make plain to him the facts as to why or how they interfere with his efficiency or happiness, will convince the vast majority of patients that the physician does know his business; especially will it do so if this information checks up with that given by the physician whom the patient has previously consulted. This information the patient will accept as a definite and satisfactory answer to the question, "What evidence have I that you, the physician, will render efficient service?"

It will be patent to the intelligent thinker that a clinical examination, made before taking the history, places a check on any inefficiency of the physician himself. If the physician does not correctly interpret the symptoms he will by the patient's word or action be at once cognizant of the fact (before much time or money has been wasted) that he has undoubtedly erred in his diagnosis. The patient's attitude will also give a warning, which otherwise might be overlooked, that it is good policy for the examining physician to verify his findings before some other physician, a competitor, is requested to do so!

A clinical examination made before taking a history, moreover, enables a physician to handle a patient skilfully and successfully; it permits him to place a correct value on the subjective symptoms of the patient,—an important factor in the intelligent control of a patient—since temperament will very often cause the patient unintentionally to minimize or exaggerate his symptoms. Above all, it will raise the standard of the medical profession; for, by omitting the names of all previous examining physicians and refusing to take the history prior to a clinical examination, the physician will be enabled to impress upon a patient that he, the patient, can in no way consider the diagnosis made, or the information given, as a personal criticism of another physician. So the diagnosis then becomes virtually a question of the intelligent and skillful use of one's senses, and competition in the practice of medicine having been placed on a legitimate basis, one of the main sources of the many petty jealousies and disagreements which exist with the profession is removed, for competition is now based upon EFFICIENCY OF SERVICE, rather than upon PERSONALITY.

RULES FOR FORMULATING STANDARD MEDICAL OR SURGICAL EXAMINATION THAT WILL FURNISH THE MAXIMUM AMOUNT OF TRUE KNOWLEDGE IN A CONCISE WORKING FORM

These rules are based upon universal and necessary principles derived from the correct interpretation of Nature's laws.

Rule A: Knowledge must be obtained through the efficient use of not one but of all the special senses, and all the mechanical aids that increase their efficiency.

Rule B: The mind, to receive and correctly interpret sense impressions, must receive them unbiased by the emotions or by concepts which are the results of prior sense impressions.

Rule C: Knowledge, to be made useful to man and produce maximum results, must be co-ordinated, organized and systematized, as must the means and methods of obtaining same.

The correct application of these rules requires compliance with the laws of psychology and the principles of efficiency, if there is to be obtained:

1. A practical working concept of a part, or an organ or system of organs of the body to be examined.
2. A practical working concept of the normal anatomical location of a part, or an organ or system of organs of the body to be examined.
3. A practical working concept of the physiological function of a part, or organ or system of organs of the body to be examined, and the physiological relation of this part of the body, organ or system of organs to the normal physiological function of the whole human organism.
4. A practical working concept of the conditions external to the body and the environments that affect the physiological workings of the part, organ or system of organs in the body of the individual, attained through knowledge of vocation, etc.

These working concepts must now be co-ordinated, organized and systematized so as to form immediate, accurate and reliable records. This can be done:

1. Through a listing of the special senses and the methods and means whereby all the senses can be so applied as to obtain a practical working concept of any part, organ or system of organs of the body to be examined.

2. Through a listing of the mechanical aids that will increase the efficiency of all the senses, and the means and methods whereby they can be so applied as to obtain a practical working concept of any part, organ or system of organs of the body to be examined.

3. Through the co-ordinating, organizing and systematizing of the means and methods whereby the senses and mechanical aids thereto are applied so as to reduce to the minimum the cost in time, money and energy, and yet permit of the attaining and maintaining of efficiency.

These practical working concepts must be created and immediate, accurate and reliable records formulated, so that the intelligence guided by the higher emotions of justice, fair-dealing, efficiency, reward, etc., may have true premises from which deductions may be drawn that will possess not theoretic but economic working value.

(In the next article the writer will present a Standard Urological Examination, giving a practical demonstration of the results of applying these rules, the object being to demonstrate that if applied to the examination of any organ or system of organs an efficient working standard examination can be created.)

ABSTRACTS, REVIEWS, SUMMARIES AND CONCLUSIONS FROM THE CURRENT LITERATURE

Occurrence of Virulent Anthrax Bacilli in Cheap Shaving Brushes. Douglas Symmers and D. W. Cady, JI. A. M. A., December 31, 1921.

Cheap shaving brushes bought in the open market in the City of New York have been shown to harbor virulent anthrax bacilli in three out of forty-one instances or 7.3 per cent.

In 78 per cent. of forty-one brushes examined bacteriologically, anthracoid bacilli were found—that is to say, micro-organisms presenting much the same morphologic and cultural characteristics as anthrax bacilli but which, when injected into guinea-pigs, are non-infective. The ubiquitous hay bacillus is, perhaps, the most vexatious member of this group. In the bacteriologic investigation of hair and other substances supposed to contain anthrax bacilli it follows that the infectivity of all suspicious micro-organisms should be determined by animal inoculation.

The Mode of Production of the So-called Vesicular Murmur of Respiration. George E. Bushnell, JI. A. M. A., December 31, 1921.

The selective action of resonators plays an important part in determining the characteristics of sound within the respiratory apparatus.

The specific character of vesicular breathing is due to the resonator, the thoracic cavity, the sound at the place of origin being merely a noise, some element of which is capable of exciting the sympathetic resonance of the thorax. Hence sounds produced without the aid of the larynx may imitate vesicular inspiration.

Reciprocating breathing shows that sounds may be produced by currents of air within the lung. The pitch of these sounds is the same as that of vesicular breathing, the audible vibrations of both sounds being those which the thorax as a resonator reinforces and which the lung substance, a poor conductor of sound, is able to transmit.

Experiment in which the sounds of respiration over the chest disappear when the glottis is opened wide seems to prove that the sound of inspiration as well as that of expiration originates in the larynx.

The Importance of Visualizing Established Scientific Data with Reference to the Size of the Body Cells and Their Chemical Supplies in the Circulating Blood. Georgine Luden, *Endocrin*, November, 1921.

Established scientific data may be visualized, that is, transformed, into vivid mental pictures by comparison with familiar conceptions, weights and measures.

Visualized data stimulate memory by appealing to the imagination. Visualized data concerning the size of the body cells, the number of erythrocytes and leukocytes in the total blood volume, the hydrogen-ion concentration in the blood, the size of electrons, and the concentrations in which epinephrin is physiologically active, are presented in this paper.

The practical value of visualized data lies chiefly in the food for thought which they offer in connection with great medical problems. Illustrations are given showing the bearing of visualized data on the cancer problem and on other subjects of medical interest.

X-Ray Findings in Cases of Painful Back. Archer O'Reilly, *Jl. Missouri State Med. Assn.*, December, 1921.

The lumbosacral region is one which shows a marked variation in the X-ray plate. There are three fairly distinct types; a mixed type seen in men and women, a distinctly male type, in which asymmetry is more common than in either of the other two types; a female type in which the sacrum is high and with a distinct notch between the shadow of the alae of the sacrum and the ilia. Overlapping of the transverse process of the fifth lumbar is common in the first two types and almost entirely absent in the third.

The transverse processes of the fifth lumbar, though roughly of three shapes, straight, bulbous and fan-shaped, shows very many variations, and they are usually asymmetrical.

Anatomical variations and malformations are common, but it is impossible to tell whether they cause backache or not, as they also seem to be fairly common in persons who have no back symptoms.

No doubt these variations cause a potentially weak back, and they will, sooner or later, induce definite back symptoms.

Experimental Inoculation of Human Throats with Virulent Diphtheria Bacilli. C. G. Guthrie, B. C. Marshall and W. L. Moss, Bull. Johns Hop. Hosp., December, 1921.

Virulent diphtheria bacilli present in the throats of healthy carriers are capable of producing clinical diphtheria and do not differ from those obtained from patients with the disease.

Virulent diphtheria bacilli retain their characteristics despite long residence in the human throat or transfer from one human being to another.

The guinea-pig test is a reliable index of the inherent ability of diphtheria bacilli to cause clinical diphtheria in susceptible human beings.

The Schick test is a reliable index of the presence or absence of antitoxic immunity against diphtheria.

Experimental diphtheria in human beings has a short incubation period, produces marked constitutional effects, and is accompanied by a sharp febrile reaction.

A Comparative Study of Syphilis in Whites and Negroes. Ernest L. Zimmerman, Arch. Derm. and Syphil., July, 1921.

There has been much speculation in regard to the variations in the reaction of persons to syphilis. Inheritance probably plays a part, and environment in its broadest sense, which includes occupation, habits, associated disease and the effect of treatment, influences the course of the disease. There may be added to these the variation in strain of the spirocheta pallida, a conception apparently substantiated by recent animal experimentation. It cannot be assumed, however, that strains infecting the whites, except in so far as racial antipathy and the legal restrictions placed upon miscegenation prevent intimate per-

sonal contact between the races and pave the way for the evolution of strain variations.

In this paper a comparative study of syphilis in whites and negroes is undertaken for the purpose of emphasizing inherited racial differences in response to syphilitic infection. The author presents a review of investigations that have thus far been accomplished, besides presenting the results of the investigation upon the syphilitics of the Johns Hopkins Dispensary, where 1843 cases, 893 whites and 950 negroes were studied. The manifestations of the three different stages of the disease in both races were studied and compared. The following general conclusions were formed:

Primary Syphilis—Extragenital infection is relatively infrequent in negroes. Among them the age of infection is one or two years earlier than in the white population.

Secondary Syphilis—Characterized in the negro by marked polyadenitis, by frequent and severe osteoarthritic symptoms, by the frequency of iritis, and by the high incidence of follicular and pustular syphilids. A striking racial peculiarity is the frequent occurrence of the annular papular syphiloderm.

Tertiary Syphilis—Bone syphilis is the most frequent lesions of tertiary syphilis in the negro, exceeding neurosyphilis, which in white patients comprised almost half of all late manifestations.

Cardiovascular syphilis is more frequent in the negro, with an incidence of two to one in colored and white males, respectively.

Stricture of the rectum and elephantiasis vulvæ are extremely common in the colored people. Leukoplakia is rare in the negro. Tertiary adenitis is common in the negro. Neurosyphilis is more frequent in white patients than in negroes. The negro is less likely to develop tabes or paresis, while the large group of unclassified cases of cerebrospinal syphilis is approximately of equal frequency in the two races. In negroes it is especially likely to manifest itself in the form of cerebral endarteritis.

Food Infections. M. J. Rosenau and Harry Weiss, JI. A. M. A., December 17, 1921.

It is quite clear that the students suffered with an acute infectious fever, having a short period of incubation, sudden on-

set and temperature from 102 to 103 F. with gastro-intestinal symptoms. It is also quite clear that the food responsible was the bread pudding; in fact, four of the students said that the bread pudding had a "peculiar taste, and one of them refused to eat it after the first spoonful. Just how the bread pudding became contaminated has not been worked out. It consisted of stale bread, fresh milk, sugar, eggs and cinnamon. It is natural to think of the milk as the probable carrier of infection for the reason that it has been responsible for such outbreaks in other instances. The milk may have been contaminated in the kitchen; furthermore, the bread pudding was made about 9 o'clock in the morning and stood around the warm kitchen the entire day, giving ample opportunity for bacterial growth.

Hydronephrosis as a Gynecological Problem, with Remarks Regarding the Influence of Nephrectomy Upon Subsequent Pregnancy. Arthur Morse, N. Y. State J. Med., December, 1921.

In the women the differential diagnosis of large tumors is frequently difficult. A large ovarian cyst and a hydronephrosis of unusual dimensions present clinical pictures which are strikingly similar and the latter condition is occasionally mistaken for the former.

The more common factors underlying the production of hydronephrosis are sometimes absent and the structural lesion depends upon a constriction of the upper ureter of inflammatory origin.

Well preserved glomeruli are found at intervals in a kidney which is notably distended, although, as shown by a chemical analysis of its secretion, there is a notable disturbance of function.

From the standpoint of prognosis in the event of a future conception, nephrectomy in the child-bearing period is of peculiar significance. In general, the outcome in a subsequent pregnancy is favorable, provided gestation proceeds normally. However, since the remaining kidney may be unable successfully to eliminate the waste-products of both mother and fetus, constant supervision throughout pregnancy is necessary. If signs of

toxæmia appear such as albuminuria, a decreased urinary output or hyper-tension, the pregnancy must be ended by the method appropriate to the individual case.

The Ocular Menace of Wood Alcohol Poisoning. S. Lewis Ziegler, JI. A. M. A., October 1, 1921.

The biochemistry of methyl alcohol as it passes through the system is somewhat complex. It is essentially a protoplasmic poison. The bulk of this poison is eliminated through the lungs, skin and kidneys, while the alimentary tract gets rid of a large portion. The remainder undergoes oxidation into formaldehyde and formic acid, both of which are corrosive poisons. The latter, however, will not oxidize further, but is slowly eliminated by the kidneys. Pohl, in 1893, showed that after ingestion of wood alcohol the excretion of formic acid was increased in the urine. In wood alcohol workers, this increase is so marked that Fehling's solution is promptly reduced. This chemical fact should always be borne in mind, or sugar will be suspected and a false diagnosis of diabetes made by the inexperienced.

Acidosis seems to be a constant condition in the early stages. Tyson has demonstrated acidity of the aqueous humor in some of his cases. Alkalosis may appear in the later stages. These chemical reactions will be revealed by Van Slyke's test for carbon dioxide in the blood. If the attack of acidosis is acute and of a severe type, it may manifest itself by Kussmaul respiration.

Length and Position of the Vermiform Appendix in Filipinos. Arturo Garcia and Juan Solloza, Philip, JI. of Science, June, 1921.

While it is rather difficult to draw very definite conclusions from the above work, due to its rather incomplete nature, yet the following salient facts can be safely deduced.

That the length of the human appendix is very variable and does not seem to keep any definite relation to race.

That in Filipinos the length of the appendix bears a definite relation to age, being relatively longer in younger than in older persons and, furthermore, that it gradually grows in length with age, attaining its maximum between the ages of 20 and 50 years, gradually declining thereafter.

That it is longer in males than in females.

That it is higher in children than in adults and that in the former the subcæcal is the commonest position and the retrocæcal in the latter, the antecæcal being very rare in either.

That the pelvic position considered normal by some authors was not even found in this series and must be considered infrequent in Filipinos.

Development of the Chemotherapy of Organic Arsenicals and the Related Physical Phenomena. C. N. Myers, J1. Lab. and Clin. Med., October, 1921.

The chemotherapeutic development of arsenicals is discussed showing the relation of pentavalent arsenical products to those of the trivalent condition as illustrated in the "arseno" type.

The rationale of the physiologic action is discussed from the chemical point of view showing the effect of the chemical action of mass, concentration, and pharmacodynamics.

A complete chart showing all the possible methods of arriving at the final product salvarsan (*with reference*) is given.

Methyl alcohol of crystallization is discussed with sufficient fulness to exclude it in the calculation of the often debated " $2H_2O$ " content.

Anhydrous arsphenamine is a practical test of the purity of the technical products.

The lethal dose of "arsenoxide" is found to be about 25 mg. per kg. of animal weight.

Impurities and their relation to toxicity are discussed. There is no relation between "arsenoxide content" and toxicity of various samples.

The chemical transformation of the product is shown in a chart showing the opportunities for physical chemical changes to take place.

The physical chemistry of arsphenamine is given with reference to the presence of colloidal properties and a discussion of the question of solutions in reference to viscosity, potential, dissociation, equilibrium, and ultrafiltration and their relation to toxicity.

The administration of the drug in relation to concentrated and dilute solutions is discussed. Standing for thirty minutes tends to decrease the toxicity of freshly alkalized solutions of arsphenamine.

Need of clinical standardization is pointed out.

Reactions are explained in terms of disturbances of chemical equilibrium (precipitates).

Arteriosclerosis. W. Ophüls, North West Med., November, 1921.

It appears to be a perfectly reasonable working hypothesis that the complex mixture of toxic material arising from infected foci, just as at times it seems to attack and alter the kidneys and at times more preferably the arteries, so it might provoke in the arteries or capillaries disturbances as a consequence of which high blood pressure would arise. It would then seem only logical, that in those cases in which the arteries are affected, especially severely anatomically, there would also be more likelihood of the development of functional disturbances in the blood pressure.

On the Iso-Agglutination Group Percentages of Filipino Bloods. Cristina Cabrera and H. W. Wade, Jl. Philip. Med. Assoc., May, 1921.

The result of iso-agglutination tests of 204 Filipino bloods reveal distinct differences from the Moss group-percentages of both Americans (Moffit's figures) and Chinese. The number of Group I (1 per cent) is extremely low; that of Group II (14.7 per cent) is roughly 10 less than Chinese and 40 less than American; that of Group III (19.6 per cent) is practically intermediate between the American (6 per cent) and the Chinese (34 per cent), while that of Group IV (64.7 per cent) is roughly twice as great as either of the others, two-thirds of all specimens instead of one-third. In other words, there is a much lower incidence of agglutinin, and presumably—though this is not actually demonstrated by the technic used—a correspondingly greater incidence of agglutinins than in American and Chinese bloods. Since practically two-thirds of the Filipinos, being of Type IV, are uni-

versal donors, that is, have blood that is not agglutinated by the serum of any group, the chances for harmless transfusion with untested bloods are much better in Filipinos than in American or Chinese.

A comparison of the percentages in the sexes shows no essential differences, though the numbers involved (69 females and 135 males) are too few for positive conclusions. Whether there are differences between the different sub-races of the Philippines would be interesting to determine.

Weight of Newborn Filipino Babies. Mari and Tolentino, May, 1921.

The average weight of the Filipino child at birth may be stated as 2,924.2 grams (6 pounds, 12 ounces).

The average weight of newborn babies in the charity ward is 2,962.4 grams (6 pounds, 15 ounces).

The average weight of newborn babies in the pay department is 3,510.6 grams (8 pounds, 5 ounces).

The babies of women who had stayed in the hospital for not less than ten days before childbirth were heavier than those born of mothers who did not enter the hospital until shortly before or during labor.

Studies on Blood. Florence R. Sabin, Johns Hopk. Hosp. Bull., October, 1921.

The method of studying blood with vital dyes, beginning with the stages of the embryo when the cells first appear, gives a very great advantage in following the maturation of specific cells and gives a chance of analyzing the complicated young forms which it is necessary to recognize in order to understand bone marrow.

The group of the red cells is characterized by a specific granulation stainable in certain vital dyes, possibly one should say precipitated by these dyes. This substance is at first throughout the cytoplasm, then in a wreath around the nucleus, then a reticular form and finally in scattered granules or droplets. The arrangement of this granulation around the nucleus should

be stressed, although the substance is of cytoplasmic not of nuclear origin. Red cells with nuclear fragments, Howell-Jolly bodies, can be shown to be dying cells. The strains of white cells, clasmatocytes and monocytes, that come from endothelium, are characterized by certain granules and vacuoles stainable in very dilute neutral red. They are scattered diffusely throughout the cells. The granulocytes are characterized by the arrangement of their specific granulation with reference to the centrosome. The lymphocytes are less sharply characterized morphologically, but have somewhat distinctive nuclei and granules stainable in azur.

This work is a part of the new subject of experimental cytology which seeks to analyze cells by means of specific criteria and to use these criteria to study the reactions of cells to normal and abnormal conditions.

Observations on *Bacillus Botulinus* Infection of Canned Spinach. S. A. Koser, R. B. Edmondson and L. T. Giltner, Jl. A. M. A., October 18, 1921.

Bacillus botulinus, Type A, is able to multiply and to produce its characteristic toxin in canned spinach, although the development of the organism in this food product was found to be somewhat irregular. In some instances, there was evidence of a rapid multiplication, while in others there was apparently neither growth nor toxin formation. In all of the latter cases, however, the organism was found to be viable.

A temperature of 37° C., as contrasted with room temperature, accelerated the development to a certain extent.

When multiplication had progressed readily, 0.5 c.c. of the spinach juice per os proved sufficient to kill guinea-pigs, usually within eighteen hours.

The growth of *B. botulinus* in canned spinach is accompanied by the evolution of gas as well as by the elaboration of the specific toxin. In only one instance had toxin formation advanced to such a stage as to produce a fatal result, while at the same time gas production either had not occurred or was insufficient to cause bulging of the can.

Of 174 samples of canned spinach taken from suspected lots, *B. botulinus* or its toxin was found in six. In every case the organism was of the A type. These six toxic cans were all "hard swells," and when opened the odor was distinctly offensive.

The destruction of foodstuffs deemed to be abnormal, either by appearance of the containers or by the odor, should prevent the greater number of the outbreaks of botulism. From the public health aspects of the problem, the last point is of special importance.

Clinical Calorimetry. Charles Frank Morsman, Med. Rec., October 15, 1921.

Clinical calorimetry is now within the reach of all.

Clinical calorimetry is based upon scientific facts.

Basal metabolism rating is entirely dependable if done carefully.

Clinically, metabolic rating is applicable to disturbances of the thyroid gland and in conditions simulating those disturbances.

Clinical calorimetry is an exact laboratory procedure and may be profitably added to our diagnostic armamentarium.

Four case reports are here given, two of which are of cases of hypothyroidism.

Carbon Monoxide Poisoning. L. C. Allen, Med. World, November, 1921.

Symptoms of CO poisoning come on with or without warning, according to the degree of the dilution of the gas. Henderson states that a man who has breathed 0.2% of carbon monoxide for 4 or 5 hours will die, and that the same fate will befall one who has breathed 0.4% for one hour. The attack may come on suddenly, like a bolt from the sky, and the victim may fall over and expire. Much oftener, however, the air is more lightly contaminated, and the symptoms come on gradually. There will be felt a pressure in the head, disturbance of vision, nausea and pain in the stomach, and confusion of ideas. As the case progresses intelligence becomes more and more blurred, and energy and will power are lost; so that one overcome by CO gas in a mine or a

fire may often be found sitting quietly and unconcerned by a ladder or other means of easy escape. The victim may become completely unconscious, but oftener this is not the case. Apfelbach reports 261 cases which occurred in steel mills, only 65 of whom lost consciousness.

Pneumonia often follows CO poisoning. It develops in about 36 hours after the accident, is lobar in type, extensive with numerous pneumococci, with low temperature, and relatively high pulse rate, runs a rapid course, and has a very high death rate.

Description of an Organism Obtained from Carcinomatous Growths. James Young, Edin. Med. Jl., October, 1921.

From a considerable number of cases of carcinomatous tumors an organism with a specific life cycle has been isolated. The youngest stage is minute, being just recognizable under the highest power of the microscope. This phase is derived from a germination of "scope" forms and it grows best in a highly acid fluid medium. It would represent the stage during which the original infection occurs. This stage has not been cultivated separately, because it quickly passes into a somewhat larger phase (coccoid or bacillary), which grows well at ordinary temperatures when transferred to a plate medium. This phase passes into a comparatively large sporing phase, in which it may remain dormant for long periods. The investigations open up the possibility that the smaller phases may ordinarily be passed in the nucleus of the cancer cell. If this is so it becomes likely that the proliferation of the cells is due to the stimulus of the intranuclear parasite, and the continued and uncontrolled proliferation that characterizes a malignant growth would thus be explained by the fact that the daughter nuclei carry with them one or more germs in the dividing or vegetative phase. Finally, a record of three malignant growths apparently produced in healthy mice by the injection of the cultures tends to support the belief that the organism may possess some etiological relation to tumor growth.

The investigation was conducted in the Royal College of Physicians Laboratory, Edinburgh.

The Differential Diagnosis of Chancre and Carcinoma of the Cervix. Aldred Scott Warthin and Lloyd Noland, *Am. Jl. of Syphil.*, October, 1921.

The diagnosis of chancre of the cervix should be made only on the basis of a histologic examination of tissue excised from the lesion. The histologic picture is pathognostic. The demonstration of spirocheta pallida in the characteristic tissue-lesion is a confirmatory procedure.

Points of Contact Between Some Surgical Conditions and Cardiac Disorders. Samuel A. Levine, *N. Y. State Jl. Med.*, October, 1921.

Some cases are discussed in which the symptoms, more or less severe, indicate a surgical condition in the abdomen, but which prove to be due to a disturbance in the heart. The two important conditions causing confusion are infarction of the heart and the transient form of auricular fibrillation or absolute arrhythmia.

Acute heart disorders that occur during anesthetization or during surgical convalescence are discussed and the proper management of such upsets referred to.

The So-Called Presystolic Murmur. William D. Reid, *Jl. A. M. A.*, November 19, 1921.

The crescendo murmur ending in a sharp first sound or merging into a systolic murmur is wrongly designated as presystolic, since in reality it is early systolic in time.

This so-called presystolic murmur is due to a regurgitant stream of blood, impelled through the mitral valve by ventricular systole.

The writings of a number of previous observers support this interpretation.

Against the conception that it is due to the contraction of the auricle, there are, in addition to the data presented in an earlier paper, its quality, time, absence of a pause between it and the succeeding sound or murmur, its persistence in some cases of auricular fibrillation, and the occurrence at times of another murmur in true presystole.

While the murmur is frequently observed in hearts whose mitral valve is stenosed, it may be present in conditions in which the mitral orifice is not narrowed.

A misunderstanding of the true nature of the so-called presystolic murmur has resulted in errors in cardiac diagnosis.

There are two distinct murmurs, the so-called presystolic and a true presystolic. The latter is less common and more difficult to detect. It would appear that the two murmurs have been confused.

Fracture of the Carpal Scaphoid. D. V. Trueblood, North West Med., October, 1921.

The carpal scaphoid is more frequently fractured than any other carpal bone, and more frequently than statistics describe.

Ordinarily there is a distinct typical history of injury and typical physical findings, but these evidences may be lacking.

It often overlooked under the diagnosis of "wrist sprain and wrist contusion."

Mechanical factors can be offered to explain why it is susceptible to fracture.

But its form, its embryologic development and its relation to human phylogeny offer certain information as to the frequency and peculiarity of this injury.

Report of a Case of Cephalic Chancroid. Herbert A. Potts, JI. A. M. A., December 10, 1921.

It may be questioned whether the encephalitis which is believed to have occurred was due to a bacteremia precipitated by the disturbance of the focus of infection, on the ground that it might have been a coincidence; but it seems logical to assume that such was not the case. There are examples of rupture of tuberculous glands into the thoracic duct, producing a hematogenous tuberculosis; there are brain abscesses in the course of bronchiectasis, and one may see multiple abscesses in the skin from a thrombophlebitis.

Mobile Ascending Colon and Duodenal Obstruction as Common Causes of Equivocal Symptoms in the Abdomen. A. A. McConnell, Dublin JI. Med. Science, September, 1921.

Once suspected the diagnosis can be made absolute by radioscopic examination. *X-rays* have given us second sight, and we are wilfully blind to the interests of our patients if we neglect to use them. Diagnosis must precede treatment. Examination with the fluorescent screen determines two essential points:—The excursion of the hepatic flexure as the patient passes from the erect to the recumbent position.

The degree of lateral mobility. We have frequently pushed the ascending colon across the middle line by abdominal palpation under the screen.

Some Studies of Connective Tissues. George Andrew Bates. JI. Dental Research, June, 1921.

The histologic structure of the alveolar bone, and its relation to the alveolo-dental periosteum, is a subject too little understood or considered. The bone belongs to the cancellous variety and is full of spaces, like all bone of its kind. Into these spaces the connective tissue of the alveolo-dental periosteum projects, filling them with this tissue. Obviously any infectious condition in the one may be, and probably is, communicated to the other. This may explain the fact that, in cases of pyorrhea alveolaris, the alveolar bone is destroyed; and also may prove to be the reason for the persistence of the disease, after all possible instrumentation in the alveolar process has proved unavailing.

Associated with the tooth is another cell of connective-tissue origin, the osteoblast. This cell has for its function the destruction of bony tissue. It is the so-called giant cell and is multinucleated. Kölliker found in the largest of these cells as many as fifty nuclei. They are responsible for the so-called resorption of the deciduous tooth and also for the same process with the alveolar bone after extraction. They are probably developed from osteoblasts by repeated nuclear division.

The facts here presented point clearly to the protein character of connective tissue, and also illustrate how the purpose for which the

middle germ-layer was originally developed has been achieved in the higher organisms. These facts also demonstrate that the supporting and sustaining components of the body are included in a definite group of structures, in which connective tissue is the fundamental element and the other members of the group are modifications of this basal constituent.

The Diagnosis of Latent or Incipient Diabetes. James W. Sherrill, JI. A. M. A., December 3, 1921.

Though there is rarely a diagnostic method for any disease which is infallible, the combined blood and urine tests suffice to reveal an enormous number of latent or incipient diabetic cases, with or without symptoms, which have heretofore escaped diagnosis. Because of the customary progressiveness of diabetes under ordinary circumstances, and because of the belief that such progressiveness can be largely or wholly arrested by proper dietary precautions, our greatest service to these patients may be looked for in the earliest possible diagnosis and prophylaxis, before serious symptoms have ever occurred or severe dietary privations have become necessary.

Streptococcic Dermatoses. E. D. Chipman, Arch. Derm. and Syphil., October, 1921.

Each of the conditions we have discussed as streptococcic dermatoses presents a definite clinical picture.

Impetigo, ecthyma, intertrigo and perlèche are matters of such common agreement that no comment is needed.

Impetiginization is a diffuse form of impetigo secondarily affecting an antecedent dermatosis which retains its own individuality.

Infectious eczematoid dermatitis denotes the eczematization of an infection, the infection preserving its own character in spite of the complication.

Chronic forms of impetigo are frequent. They present such lesions as circumscribed plaques of pityriasis, as well as impetiginous processes behind the ears, on the scalp and about the nose and eyes.

The character of the soil and certain internal influences may account for some objective differences in lesions due primarily to streptococci. What seems probably the determining factor of most importance is the variation in the organism itself.

Unna has maintained that different strains of streptococci may one day be demonstrated in the production of various forms of impetigo. Certainly it will not appear far fetched to reason that, just as different strains of streptococci have been isolated in scarlatina, erysipelas and measles, so they may be isolated in impetigo, ecthyma, intertrigo and other dermatoses.

A Method for the Determination of Death by Drowning.
Alexander O. Gettler, JI. A. M. A., November 19, 1921.

The new method for demonstrating the presence of drowning fluid in the left heart, given in this paper, depends on the micro-chemical determination of the chlorid content in the heart chambers.

Forty-one human cases have been investigated by this method. Eighteen of these were actual drowning cases; three of the eighteen persons were drowned in fresh water and fifteen in salt water.

A difference in the chlorid content of the two heart chambers exceeding 25 mg. indicates that the individual was drowned.

Persons who submerge while alive and die of shock during the first stage of drowning may not show this difference in chlorid content. Such cases, however, are rare.

This method is the most specific so far devised for proving that death was due to drowning.

Fractional Analysis of the Duodenal Contents in Normal Individuals. Julius Friedenwald and Joseph Sindler, JI. A. M. A., November 5, 1921.

From the observations on the fractional analyses on the duodenal contents in ten normal individuals, it may be concluded that this method of examination presents a simple means of determining quantitatively the degree of alkalinity as well as the quantity of ferments present for several hours after the stimulation of the duodenal contents by means of a test meal. The degree of alkalinity is usually highest in the fasting state, and falls immediately after the test meal is given and then gradually rises; it bears no relation to the curve of gastric acidity. A similar effect is observed usually in regard to the ferments, the strength of one ferment being wholly

independent of the other. Finally, these findings, obtained under normal conditions, appear sufficiently definite to serve as a basis for further study of pathologic changes in the duodenal contents.

Diverticula, Diverticulitis and Peridiverticulitis. Samuel G. Gant, JI. A. M. A., October 29, 1921.

Diverticulitis and peridiverticulitis mimic and must be differentiated from neoplastic tuberculosis, chronic appendicitis, actinomycosis, intestinal obstruction, carcinoma, chronic sigmoiditis, fecal impaction, encysted foreign bodies, disease of the adnexa, chronic abscess, fistula and vesical tumors.

The majority of sacs do not induce symptoms. A few cause slight disturbance, but in typical cases of diverticulitis and peridiverticulitis, symptoms and signs of the disease are characteristic. With a history of chronic left-sided inflammation, with periodic exacerbations, and an absence of marked cachexia and loss of weight, one is justified in making a diagnosis of diverticulitis when the patient complains of obstipation and diarrhea, localized muscular rigidity, tenderness, pain and gas retention, pus in the urine or feces, a firm, oval tumor palpable in the left inferior abdominal quadrant, and if through the sigmoidoscope the mucosa appears smeared with pus, or an opening is discovered through which pus is discharged and a probe can be introduced into the sac. Owing to the frequency with which fistula connects the bladder and diverticula, cystoscopy and examination of the urine for pus is advisable.

Roentgenographic demonstration is often impossible: but when the lumen of the diverticulum communicates with the bowel, the pouch may sometimes be defined by roentgenograms taken following the administration of barium enemas or meals.

In some cases, microscopic examination of the sectioned specimen is helpful for an exact diagnosis; but this is unnecessary, since removal of the tumor is imperative in any case.

PROGNOSIS

The mortality is nil, and recovery promptly follows the removal or unfolding of small or large uninflamed inactive pouches; there is some danger from operations for chronic diverticulitis, and the mor-

tality is rather high in cases in which operation is performed during an acute crisis complicated by marked obstruction, peritonitis or abscess.

Bacillary Dysentery in Children. Alexander Goodall, Edinb. Med. Jl., October, 1921.

As regards etiology of the dysentery cases, it was found in many instances that there had been contact with another child or adult suffering from a mild diarrhoea. In several instances two cases occurred in the same house. An examination of the milk supply showed that the dairy could not be the source of infection. Studies of adult dysentery have shown that large epidemics may be water-borne, but bacilli are rarely recovered from central water or milk supplies. It has been suggested that as most of the affected children are of the creeping age, infection may be acquired by the child's fingers becoming soiled on the floor. The infection of milk in the individual household by flies or the mother's fingers is a possible explanation of the spread of dysentery. The boiling of milk and milk mixtures before feeding has an important preventive effect.

Flies, however, are the chief offenders. Dysentery bacilli which live with difficulty outside the human body, weather the winter by means of chronic and mild cases and carriers, and in the spring are ready for wider dissemination by means of flies.

Epidermophytosis. Charles J. White and Arthur M. Greenwood, Jl. A. M. A., October 22, 1921.

The author wishes to enter a plea for the standardization of mediums used in this country. It is evident to any one who has worked with these fungi that their manner of growth varies greatly with the mediums on which they are grown. It is plain, therefore, that the results of various investigators, so far as the accurate identification of the species is concerned, will vary with the mediums used. Practically no American writers on the subject have specified the brands of maltose, glucose and peptone used, so that any comparison with their work is impossible. As it is now possible to obtain the Sabouraud peptone and an American dextrose closely approximating his maltose and glucose, and as long as his descriptions

and nomenclature are accepted as the standards, each investigator should use his exact mediums and technic. It seems that results obtained from other mediums and technics are valueless when it is attempted to compare them with Sabouraud's. One must either work out the gross appearances and mycology of all the genera and species for each variety of medium, or hold to the one already worked out and at present accepted. As a further complication of this subject it seems probable, certainly as far as the trichophytons are concerned, that there is a more or less distinct flora in this country.

Epidermoid Cysts. Henry H. Sherk, Surg., Gynec. Obst., November, 1921.

Epidermoids are evidently of fairly frequent occurrence, but almost invariably unrecognized.

They are almost always mistaken for sebaceous cysts.

They may be either traumatic or embryonic in origin.

The pearly, horny, and laminated contents make their recognition easy.

The Diagnostic Value of Pupillary Symptoms in General Disease. Matthias Lanckton Foster, N. Y. Med. J1., November 16, 1921.

It must be admitted that the behavior of the pupils, taken by itself, is an unreliable guide to diagnosis. The pupils may be dilated, contracted, or normal in acute and chronic alcoholism, as well as in other kinds of poisoning, and their reactions may be increased, decreased, or not affected; their condition depends on the quantity of the poison taken, the nature of its action, the stage of its action when we happen to see the patient, and the latter's susceptibility. The same uncertainty of pupillary behavior exists in meningitis, most intracranial troubles, psychoneuroses, and many other diseases. Nevertheless, observation of the pupils, when taken in conjunction with the other symptoms present, frequently proves a very valuable aid in the diagnosis of general disease.

The Blind Spot. Harry S. Gradle, JI. A. M. A., November 5, 1921.

Medullated nerve fibers in the retina adjacent to the disk, as a rule, cause an enlargement of the blind spot.

The enlargement of the blind spot found in such cases seldom corresponds in size or shape to the ophthalmoscopic picture of the medullated area.

The disparity between the size and shape of the blind spot and the ophthalmoscopic picture of the mass of medullated nerve fibers indicates that medullated nerve fibers within the retina are not opaque to incident light for the entire length of the medullation and that the degree of opacity cannot be deduced from the ophthalmoscopic picture.

In such cases the enlargement of the blind spot indicates merely the nerve resulting from operation, no recovery is to be looked for if presence of overlying medullated nerve fibers in a layer sufficiently thick to occlude incident light.

The term "opaque nerve fibers" is a misnomer and should be discarded for the proper term "medullated nerve fibers."

Facial Paralysis. Alex. Gibson, Surg., Gynec. and Obst., November, 1921.

The prognosis depends essentially upon the site of the lesion and its character. Cases affecting the upper neurone are not likely to show spontaneous recovery. The majority of cases of facial paralysis met with do clear up, because the bulk of them are cases of simple neuritis associated with exposure. In the case of injury to the nerve resulting from operation, no recovery is to be looked for if there has been actual severance of the nerve fibers, and it is hard to see how recovery can take place, where paralysis is a sequel to operation, except in the cases where a localized œdema of the nerve is a result of reactive processes in the neighborhood. Outside the skull, the prognosis is not so good. The nerve very soon breaks up into branches, and judging from one's experience in nerve suture, the outlook is rather unfavorable when a large number of branches pass off near the point of damage. Broadly speaking, therefore, it may be said that when paralysis comes on suddenly and completely

after a mastoid operation and does not clear up in 5 or 6 weeks, there is not likely to be spontaneous recovery. It is of some value in all cases to test the electrical reactions. In cases of complete severance the reaction of degeneration appears in about 2 weeks. The presence of a response to faradism is always a hopeful sign. Those who have a good deal to do with electrical reactions in nerve lesions incline to place less stress upon mere qualitative response. Without a condenser to give quantitative measurements, electrical tests are of limited value, and the condenser is an instrument not always available.

Follicular or Dentigerous Cyst. Raymond J. Wenker, JI. A. M. A., December 10, 1921.

A good history, followed by thorough clinical and roentgen-ray examination, will usually clear up the diagnosis. A more or less slow growing and hard tumor with little or no pain, associated with an unerupted tooth, and especially when located in the mandible, is suggestive of a follicular cyst. Rarely, evidence of a tooth or teeth may not be discovered in the roentgen-ray examination. A toothless cyst should be differentiated from a root-cyst. The history, or a careful test for pulp vitality, may clear this question. However, the history of prior extraction of particular teeth, and especially of the previous pathology of these teeth, is very unreliable. It is quite probable, therefore, that some of the so-called toothless cysts which have been reported were in reality root-cysts from which the diseased teeth were previously extracted. A dentigerous cyst in the antrum may be difficult to differentiate from a root-cyst or from a chronic antrum infection. However, surgical experience indicates that a cyst in the antrum is most frequently a root-cyst. Moreover, operative procedure would be quite similar in either case, and prior diagnosis, although desirable, would not be a necessity. In case of a painful and inflammatory cyst, a critical examination of the surroundings for diseased teeth, as well as an analysis of the history of recent accident, should be made to determine the cause. Rapid growth, pain and inflammation which cannot be explained by injury or localized infection is strongly suggestive of malignancy. An exploratory operation is indicated in all cases of suspected malignancy.

nancy for macroscopic and microscopic examination and final diagnosis. In case no malignancy or localized cause is found to explain the existence of the pain, a search for a remote cause should be made to aid in clearing the diagnosis prior to removal of the cyst.

Sensitization to Fowl Protein Misinterpreted as of Mental and Nervous Origin. James L. Tracy, Med. Rec., November 12, 1921.

Sensitization to fowls is dependent upon a preexisting cell receptivity to fowl emanation.

The presence in the patient of mental nervous peculiarities should suggest lack of cell integrity.

Absence of reasonable pathological foci as a cause for existing functional derangements points toward inept nerve cell condition.

The nerve cell sensitized to fowl works out the inhibition of the terminal distribution of the autonomic nervous system.

Frequent infection in some way ultimately brings about constant subnormal temperature, subnormal blood pressure, with the functional subnormal trend further showing up in the rapid work of the heart trying to make up for the air stagnation in the vesicles.

Sensitization to fowl differentiates itself from the asthmatic group in that (a) it is not a seasonal or periodic disease. (b) It is febrile in its commencement. (c) Nasal passages and large bronchi secrete profusely. (d) Bronchial secretion is easily expelled. (e) It is entirely free from bronchial spasm. (f) Single infection tends to recovery in ten days. (g) It leaves no structural change. (h) Complete recovery of all functions occurs after daily exposures extending over many months.

Spirochetal Pulmonary Gangrene. B. S. Kline, JI. A. M. A., December 10, 1921.

In these three cases, as well as in a number of those reported previously by others in which spirochetes and fusiform bacilli were found in the pulmonary lesions, a striking thing is the fact that apparently similar organisms were constantly present in lesions of the mouth.

That the presence of these organisms in lesions of the mouth may have been of great importance in the pathogenesis of the subsequent pulmonary lesions is apparent from the knowledge that the lung may be infected by bacteria aspirated from the mouth during surgical anesthetics, unconsciousness following exhaustion and even during normal sleep.

This explanation, opposed to that which claims for the organisms a primary habitat in the bronchi, suggests the possibility that spirochetal pulmonary gangrene may be prevented by proper oral hygiene measures.

Functional Disturbances of Gastric Secretion, Motility and Sensibility. W. H. Foreman, *West. Med. Times*, September, 1921.

The secretory function of the stomach is influenced by so many factors outside the stomach that the amount and character of the secretion gives little knowledge of the pathology in the stomach.

In the interpretation of gastric motility we must consider (a) organic disease in the stomach, (b) the gastro-intestinal tube as a unit with its segmental irritability and tone, (c) derangements in other viscera, (d) nerve and psychic stability.

Pain in the epigastrium may be: (a) true gastric pain in organic disease in the stomach or duodenum, (b) pain "referred" from other structures, (c) true gastric pain from organic or functional derangements in other portions of the gastro-intestinal tube or in other structures, visceral or somatic, (d) reflex pain in epigastric somatic structures from visceral disease or visceral dysfunction. The reflex occurring over the splanchnic and spinal nerves, (e) pain due to hyper-irritability, instability or disease of the nerve centers.

Gastric Symptoms. John M. Blackford, *Jl. A. M. A.*, October 29, 1921.

In 1,000 patients:

Fourteen per cent. actually had organic gastric disease.

The roentgenologic examination determined these cases accurately and within a very small percentage of error. Its negative value is therefore very high.

Thirty-four per cent. showed abdominal extra-gastric disease giving reflex stomach disturbance.

Inflammations of the gallbladder apparently caused more stomach disturbance than any other organic abdominal lesion.

Eighteen per cent. presented themselves for diagnosis of stomach trouble which, investigation showed, was due to demonstrable systemic disease.

Twenty-five per cent. presented no objective pathologic condition. Their complaints were considered secondary to habits of living, type of individual, or to chronic debility.

A Consideration of So-Called Functional Intestinal Conditions.
B. B. Vincent Lyon and Henry J. Bartle, *Internatl. Jl. Gastro-Ent.*, August, 1921.

So called functional intestinal conditions suppose a normal condition of the intestines, the function of which is often altered on account of some concealed pathology somewhere else.

They are divided in four groups: 1st, the motor group; 2nd, the sensory group; 3rd, the spastic group; 4th, the dilatations.

The proper functioning of the intestine depends on the harmonious work of the vagus and sympathetic systems; when this harmony does not exist, we can have any of the above mentioned conditions single or combined.

It is important to find the factors that disturb this harmony. This can be done only with the most painstaking and complete examination of the patient. Great stress is laid on the importance of the use of the proctoscope and of the examination of the feces.

Intussusception of the Ileum in Adults, Due to Benign Tumors. Surg., Gynec., Obst., November, 1921.

While intussusception is essentially a disease of childhood, it is found in adults with sufficient frequency to make it of surgical importance.

Intussusception in childhood is usually spontaneous. In intussusception in adults a demonstrable lesion can ordinarily be found.

The most common cause for intussusception in the small intestine in adults is a benign tumor.

Benign tumor of the intestine can often be diagnosed before obstruction occurs.

Recurrent invagination is often present previous to obstruction.

Etiology, Pathology and Treatment of Cysts of the Jaws. George M. Dorrance, J1. A. M. A., December 10, 1921.

Cysts in general must be diagnosed from very few other conditions. In their early stage they are practically all at first recognized by the roentgen ray. First, it must be differentiated from suppuration of the antrum and a condition called hydrops of the antrum or a cystic degeneration of the antrum, which the author has never seen, and from various tumors, such as osteoma and sarcoma. On account of the early age at which cysts are noted, carcinoma is usually not present.

The difference from disease of the antrum is first a difference in the history, a discoloration or absence of a tooth point to a cyst. The roentgen ray materially assists in the diagnosis. Second, the cyst is usually more anterior on the alveolar margin than a distended antrum would be. Third, the almost pathognomic sign of cyst disease is the crackling feel of a ping-pong ball—former writers called it parchment-like.

Transillumination has been of very little value. A needle puncture, under local anesthesia, will almost always clear up the diagnosis. The symptoms of a cyst are: If small, they are usually first discovered accidentally by a roentgenogram. The patient first notices a slight swelling, which grows very gradually without pain in all but the multilocular variety. It is observed most commonly above the lateral incisor and canine in the alveolar margin, but may first show itself by swelling or enlargement in the hard palate. The physical signs early consist in a bony enlargement, later followed by the ping-pong crackling on palpation, with the elevation of the floor of the side affected, if the cyst is in that area.

Position and Size of the Kidneys Among Filipinos. Juan C. Nafagas, Philip. J1. of Science, June, 1921.

The findings may be summarized as follows:

The kidneys were in general at higher levels in males than in females.

The variability of the horizontal planes of both kidneys was greater in males than in females.

The upper pole of both male kidneys was generally found at the lower half of the twelfth dorsal vertebra, and in the case of the left often at the level of the disk above it, with a tendency in both sides to be higher. In females it is also found at the level of the twelfth dorsal vertebra, though apparently not as frequently as in males, with a tendency to occupy lower levels.

The right kidney is found farther from the median line of the back than the left, regardless of sex, and in corresponding sides it is found farther from that point in males than in females.

In general the left kidney is larger than the right.

The female kidneys, considered either in general or by corresponding sides, were larger than those in the males.

There is a gradual increase in size of both kidneys with age, up to a certain maximum, attained in males between 30 and 40 years, and in females up to the age of 30 with a gradual decline thereafter.

Kohler's Disease. George I. Bauman, JI. A. M. A., October 1, 1921.

The symptoms and the course of the disease are quite constant. The first complaint is a limp; pain is present usually only on walking. There may be some redness or thickening. There is usually some tenderness over the scaphoid, but no muscle spasm or atrophy in the leg.

The disease pursues a mild course, and the symptoms disappear within a few months or a year. The shape and structure of the bone as shown by the roentgen ray seem to return to normal with the disappearance of the symptoms.

Leucopenic Leucemia. Nathan E. Brill, Med. Rec., November 19, 1921.

From what has been said, it may be seen that from the original conception of pus blood being the sign of leucemia, the involvement of the hemopoietic organs particularly became the significant factor in the conception of the disease; that there are two types of cells distributed in part throughout the body which become involved in the hyperplasia of leucemia, causing the more or less extensive infiltra-

tion of the various organs and tissues with myeloid and lymphoid cells respectively; that in this process the red-blood-cell producing tissues may be stimulated to activity causing the picture of so-called leucanemia, which term ought to be discarded; that the disease leukemia may exist in an acute or chronic state, and that it is almost invariably fatal.

The Experiment of Leper Segregation in the Philippines.
Jose Albert, JI. Philip. Isl. Med. Assoc., July, 1921.

The fifteen years of the experiment of complete, absolute segregation in Culion have not succeeded in reducing the annual number of admissions to any reasonable degree which might justify the continuation of such a measure, so unnecessarily cruel and against the sacred sentiments of love of family and of home. Such segregation of all lepers, *without any distinction between dangerous and non-dangerous cases*, has not responded to the hopes and expectations of its authors nor to the sacrifices extorted from the people. The continuation of the present system can only be justified by the hysterical fear of medieval ages.

The Culion experiment is not based upon our present knowledge of *the degree of the contagiousness of the disease*. The fact that an intimate and prolonged association can produce infection in only 5 per cent of the people, and the eloquent fact that syphilis and tuberculosis, which are much more contagious, are not subjects of isolation, supply sufficient reason to condemn the present system of compulsory segregation of all lepers as being anachronic, unjustified, and ultrascientific.

Owing to the great difficulties in communication and transportation, the execution of the present system of centralization in one single leprosarium of all lepers of the Island is utopic and impracticable, for it requires the maintenance in the different ports and provinces of leprosarria which really become permanent.

The present drastic system favors the concealment of cases, making more difficult the institution of early treatment, upon which fact modern therapeutics is based. The inevitable concealment of cases with no visible lesions neutralizes and destroys all the apparent and doubtful efficacy which could be claimed in favor of such harsh measures of absolute isolation.

We consider it of urgent necessity to inquire into other factors which affect the receptivity of this disease such as, for instance, consanguinity, heredity, food, habits of cleanliness, occupation, and sanitary surroundings. It becomes necessary to study the etiological conditions which are probably present in the people of Cebu, in order to learn the cause of the *regional receptivity* of the province.

The extraordinarily long period of incubation so peculiar of leprosy, as well as its characteristic chronicity, clearly indicate that there is a certain natural immunity against the virulence of the disease. The recognition of this immunity or organic defensive power indicates also that the first line of defense against the infection is good nourishment and proper personal hygiene. For this reason it is suggested, in addition to the actual adequate medical treatment as maintained by many leprologists, with Hansen at their head, that no expense be spared to increase the subsistence and the number of medical attendants for these unfortunates in Culion.

Based primarily upon the failure of the Culion experimentation and also upon the present medical knowledge as regards the transmissibility and curability of leprosy, I suggest the convenience of studying legislation similar to that of Norway, to take the place of our present leprosy laws, which would prescribe the segregation of lepers with open lesions in appropriate hospitals whenever their isolation at home is considered by competent authorities unsatisfactory and unsafe.

Lipodystrophia Progressiva. Henry Lee Smith, Johns Hopk. Hosp. Bull., November, 1921.

Lipodystrophia progressiva is a relatively rare condition, beginning insidiously and usually in early life; caused, possibly, by endocrine dysfunction; not hereditary; does not endanger life; and, is more commonly and more characteristically developed in the female. It is characterized pathologically by a slowly progressive, almost, complete and probably permanent disappearance of the subcutaneous fat from the head, face, neck, upper extremities, and from the trunk as far as the pelvic bones and groin folds, and, especially in the female, by an increase in the subcutaneous fat of the buttocks, thighs and legs.

Prognosis of Foreign Body in the Lung. Chevalier Jackson, JI. A. M. A., October 8, 1921.

The prognosis of unremoved foreign body in the lung is grave.

About 2 per cent. of foreign bodies are coughed up, and in these cases the prognosis is good; but this fortunate termination is too rare to justify waiting, in view of the fact that bronchoscopy is 98 per cent. successful. As between thoracotomy and waiting for spontaneous expulsion that may never happen, the prognosis of the latter course is less serious.

The prognosis of thoracotomy for removal of aspirated foreign bodies, so far as can be determined, is extremely grave. For penetrating foreign bodies, it is so grave as to be inadvisable unless supuration has intervened.

The prognosis as to bronchoscopic removal of aspirated foreign bodies is very good (98 per cent. removals). It may be said that almost any localizable foreign body that has gone down the natural passage can be brought up the same way. The prognosis as to recovery after removal is excellent (98.3 per cent. recoveries). Of forty-four cases complicated by abscess or bronchiectasis, in forty-two (94.4 per cent.) the patients recovered good health. The risks of a very brief and careful bronchoscopy without general anesthesia are almost nil.

The prognosis in case of a penetrating foreign body removed from the lung by bronchoscopy through the mouth, based on the only case so far thus dealt with, is good. The patient had no hemorrhage, no rise of temperature, was discharged cured three days after the bronchoscopy, and is still in perfect health. A large series of cases will be required to determine the prognosis. The method is necessarily limited to foreign bodies whose smallest diameter is less than that of the main bronchus of the invaded lung. It can be considered justifiable only after careful localization studies by lung-mapping in the particular case; otherwise fatal hemorrhage may be encountered.

Meningitic Neuro-Labyrinthitis and Tumors of the Eighth Nerve. J. S. Fraser, Edin. Med. JI., October, 1921.

Differential Diagnosis.—If solitary tumors of the eighth nerve are to be diagnosed at the early stage it is of the utmost importance that

otologists should thoroughly examine all cases of unilateral nerve deafness. Eighth nerve neuroma must be diagnosed from:—(1) **Acquired syphilitic neurolabyrinthitis** by the history and the Wassermann reaction of the blood and cerebro-spinal fluid. (2) **Neuritis of the cochlear or vestibular (or both) divisions** due to (a) exposure to cold wind; (b) toxæmia; (c) quinine, salicylate, arsenical poisoning. One does not find complete deafness in the above conditions. (3) **Hæmorrhage into the labyrinth**, by blood examination. (4) **Senile or arterio-sclerotic deafness** is bilateral; the vestibular reactions are retained. (5) **Unilateral congenital deafness** is rare; the vestibular reaction is usually present. (6) **Circumscribed labyrinthitis** is associated with otitis media. (7) **Latent labyrinthitis** can be diagnosed by the history and the galvanic test. (8) **Otosclerosis** by functional examination. (9) **Serous meningitis in the lateral cistern** (Bárány's symptom complex) is associated with a history of otitis media and a well-marked pointing error. Lumbar puncture results in improvement and a return of normal caloric reaction.

Prognosis.—Toynbee and Henschen have recorded cases with deafness sixteen to twenty years before death. Henschen gives the average duration of illness as three and a half years. Cases in young subjects are more rapid in their progress. Only solitary unilateral tumors are suitable for operation. Bilateral cases are associated with general neurofibromatosis.

Embolism and Thrombosis of the Superior Mesenteric Artery. Eugene Klein, Surg., Gynec. and Obst., October, 1921.

Occlusion of the mesenteric vessels is most often effected by an embolus or a thrombus.

Experimentally, by varied disturbances of the intestinal blood supply, there may be produced lesions varying from limited necrosis of the mucosa to extensive infarction of all the intestinal coats. The milder lesions are not fatal and heal completely.

It seems likely that these experimental findings are closely paralleled by the lesions in man.

Closure of the superior mesenteric artery in man may be followed by—

Complete establishment of a competent collateral circulation which will (1) persist effectively throughout the patient's life, or, (2) subsequently break down, usually because of aggravated disease of the heart or the blood vessels;

Intestinal obstruction without infarction owing to a blood supply sufficient for life of the parts but not for function;

Intestinal infarction, with the injury varying through all stages from a moderate lesion of the mucosa to pronounced necrosis of the intestinal walls.

Following obstruction of the trunk of the artery the third effect noted above is the most common.

Following obstruction of a branch the first effect is the most common.

The patients in group three present the symptoms of intestinal infarction. The presence of a logical cause for occlusion of the mesenteric vessels, the sudden onset of shock and violent abdominal pain, the symptoms of intestinal obstruction, preceded or accompanied by bloody vomitus or stools should strongly suggest the possibility of such infarction.

In the group two there are the symptoms of intestinal obstruction without any apparent cause.

In group 1 (b) during the stage of compensation there may be no symptoms. On the other hand in the arteriosclerotic cases, symptoms parallel to those of intermittent claudication may be present. The picture closely resembles and may be easily confused with that of peptic ulcer.

In group 1 (a) symptoms may have occurred at the time of the establishment of the collateral flow. These may be mild or, on the other hand, indistinguishable from those that occur with fatal cases. They are dependent on the severity of the lesion produced.

The symptoms produced by closure of the branches parallel those given above for the main trunk. Here, however, most commonly no lesion is produced. Consideration of the etiology and pathology makes it certain that many non-fatal cases occur which are never recognized and which could be found at autopsy if sought for.

A favorable outcome without operation does not exclude the diagnosis of embolism or thrombosis of the superior mesenteric artery.

Menstruation and Ovulation. Professor Oskar Frankl, Dublin JI. Med. Sciences, November, 1921.

It will be noticed that in this whole exposition the term "interstitial gland" in the sense of "puberty-gland," as Steinach calls it, was not employed. The author considers that an interstitial ovarian gland in a sexually matured woman can be demonstrated histologically, and that up to the present there is no proof either for its existence or for its function. Therefore, the author does not agree with Steinach as to his rejuvenating experiments.

Determination of the Basal Metabolism from the Carbon-Dioxide Elimination. John T. King, Jr., Johns Hopk. Hosp., September, 1921.

What are the advantages or disadvantages of using CO_2 elimination instead of O_2 consumption as an index to basal metabolism?

The apparatus needed to collect and weigh CO_2 is simple and stable.

The method is "open." This prevents danger of possible respiratory infection, for which the "closed" methods have been criticized.

By weighing the CO_2 output one needs to make no corrections for temperature and barometric pressure, such as becomes necessary in using volumetric methods of O_2 consumption.

The psychic effect upon the patient that accrues from this open method are as follows:

A. He may be assured that he is breathing "fresh air."

B. The moving spirometer and the buzzing fan, often part of the "closed" apparatus, may form an annoyance to the patient.

Statistical studies upon protocols of two groups of experiments with the Atwater chamber calorimeter show a somewhat higher coefficient of correlation between CO_2 and measured calories (plus .719 and plus .846 in the two series) than exists between O_2 and measured calories (plus .488 and plus .836 in the two groups).

An analysis of 157 published observations upon gas exchange showed that CO_2 is either not "washed out" during the practical application of the basal metabolism test, or else it is "washed out" in negligible amounts.

Results of measurements of CO_2 obtained through the method suggested in the paper corresponded closely with those published by Benedict and associates.

The practical application of the proposed method has been satisfactory in several hundred observations upon all types of patients. The methods should not be used in diabetes because of the altered respiratory quotient in that disease.

A method is proposed whereby CO_2 elimination may be used as an index to basal metabolism. The apparatus is stable, simple and relatively inexpensive.

The CO_2 elimination seems to be at least as accurate and possibly a more accurate index to heat production than is O_2 consumption.

The Etiology of Parenchymatous Nephritis. George E. Ebright, Calif. State Jl. of Med., October, 1921.

The black elevated mole which gives rise to melanotic tumors, should be removed to protect against cancer.

The unhealed crack, or sore, or pimple on the lips or in the mouth, should not be allowed to go without attention longer than three weeks.

The horny wart on the face or hands of elderly people, better removed before change occurs; but certainly immediately on the slightest increase in size or change in character.

Any lump in the breast. Not all lumps are cancer, but even expert physicians cannot always tell by examination which are cancer and which benign. It should be especially urged that early breast cancers are usually painless and that to wait for pain is to wait for incurability.

Chronic and persistent indigestion may mean gastric ulcer, sometimes the forerunner of cancer.

Irregular bleeding or unusual discharge especially near and after the menopause, calls urgently for careful examination.

Bleeding from the bowel may be due to hemorrhoids, but it may be due to cancer of the bowel. Careful, thorough examination is the only way to tell which is present.

Oral and Tonsillar Infection as a Cause of Nervous and Mental Diseases. H. B. Anderson, Canadian Pract. and Rev., October, 1921.

In the light of our present knowledge the conclusion appears warranted, that though oral and tonsillar infection do not produce any definite clinical type of insanity in the way that syphilis causes paresis, yet they are capable of producing pathological changes in the peripheral and central nervous tissues and thus act at times as direct and at other times as contributory causes of nervous and mental disease.

Papillary Cystadenoma of the Ovary. John F. Erdmann, and Harry V. Spaulding, Surg., Gynec. and Obst., October, 1921.

Papillary cystadenoma is the most important surgical disease of the ovary.

It is variably stated to occur in from 10 to 27.5 per cent of all ovarian tumors.

A large number of cases occur in patients under the age of thirty.

The most probable development is from a cellular perversion of the germinal epithelium.

There is a strong tendency to bilateralism (22.2 per cent) and local metastasis. General metastasis is not rare.

Bilateral ovarian tumors demand a careful examination of the abdominal viscera and breasts.

The absence of symptoms referable to the pelvic organs is a deceptive feature of the disease.

Ascites is an advanced symptom and indicates rupture, peritoneal metastasis, and often malignancy.

Every woman with ascites, without a sufficient explanation in the liver, heart, peritoneum, or kidneys, should be laparotomized even though bimanual examination be negative.

Microscopically 66.6 per cent of papillary cystadenomata are cancerous or precancerous.

Every ovarian cyst must be removed intact by abdominal section as soon as discovered.

In unilateral oophorectomy, the patient should be periodically examined.

Careless or rough handling resulting in intra-abdominal rupture, tapping to reduce the size of the tumor and the vaginal approach cannot be too strongly condemned.

Radium should be employed in cases in which the ovaries or the peritoneal implants could not be surgically removed.

Porokeratosis. Carroll S. Wright, Arch. of Derm. and Syphil., October, 1921.

Porokeratosis is a distinct clinical entity characterized by familial tendency and a characteristic clinical and histologic picture.

Clinically it is characterized by the occurrence of elevated, wart-like lesions which, as they enlarge, form an irregular peripheral wall surrounding an atrophic depressed center.

Histologically it is characterized first by an acanthosis and by inflammatory changes in the corium, which are rapidly followed by a hyperkeratosis with plugging of the sweat ducts and follicles.

Porokeratosis is best classified under the group of verrucous nevi because of the warlike character of the lesions clinically, the epidermal hypertrophy as observed histologically, the familial tendency, the noncontagiousness, the persistence throughout life, the absence of inflammatory changes, the occasional systematic arrangement and the failure to involute under the ray.

Protein Hypersensitiveness and Its Importance in the Etiology of Disease. Warfield T. Longcope, Jl. A. M. A., November 12, 1921.

A certain proportion of individuals possesses a peculiar idiosyncrasy to some substance or substances that usually are proteins, or that contain proteins, but that may be of nonprotein nature. Contact with these substances under certain conditions may cause hay-fever, asthma, gastro-intestinal disturbances, eczema, urticaria, or other cutaneous manifestations. As a rule, the symptoms of these diseases appear early in life and may be observed the first time the patient comes in contact with the substance to which he is hypersensitive. There is undoubtedly a definite tendency toward the inheritance, not of a specific hypersensitiveness, but of a quality of tissue that allows of the development of idiosyncrasies; and this may be dependent on a condition of the body fluids or of the cells

which permit of a ready union of foreign protein with them. The peculiarity of the patients is that the skin reacts by the formation of an urticarial wheal to the application of the substance or substances to which they are hypersensitive. Though these reactions are highly specific, they may be multiple and produced by a large variety of proteins.

Normal individuals who have had subcutaneous or intravenous injections of horse serum show a measureable difference in their susceptibility to serum disease. This does not depend on the amount of serum, but on the condition of the tissue cells and fluids of the body which, in the susceptible individual, allows of the rapid union of the foreign serum with the cells of the body. In the small percentage of insusceptibles, the condition of the cells and body fluids is such that the union is inhibited or takes place so slowly that serum disease does not occur.

In contrast to these highly specific reactions are the disturbances very similar in nature, that may be brought about in any normal person by the injection or absorption of some of the poisonous derivatives of the protein molecule, such as histamin.

Foci of Infection in Cases of Pyelonephritis. Hermon C. Bumpus and John G. Meisser, JI. A. M. A., November 5, 1921.

A summary of the results in this second series of cases, with the results in the six cases previously reported, shows that eighty-two rabbits were injected with strains of a green-producing streptococcus obtained from the teeth, tonsils, urine and blood of patients suffering with pyelonephritis, and that in sixty-three of the animals lesions of the kidneys were found. This, may be taken as evidence for concluding that pyelonephritis may often be due to focal infections harboring streptococci which have a selective affinity for the urinary tract, and that the colon bacillus, which is commonly found and generally believed to be the cause, is of secondary importance.

A Comparison of Ingredients of Ringworm Culture Mediums. Fred D. Weidman and Thomas M. McMillan, Arch. Derm. and Syphil., October, 1921.

Only certain species of molds (probably a very small number indeed) require crude French maltose and French peptone for identi-

fication. With many, American chemically pure (Difco) products serve perfectly well and no adjustment of reaction is necessary.

In respect to the "maltose-sensitiveness" organisms:

In the present state of the French maltose market and the absence of substitutes, we shall have to depend on glucose agar.

Imported French peptone (Chassaing) must be used.

American agar may be used, and either American cotton or filter paper used for filtering.

No adjustment of reaction is necessary as this is taken care of by the French peptone.

There is no American maltose, either chemically pure or crude, that can be substituted for the original article. The recently recommended R. A. L. imported French sugar will not serve. This has been confirmed by Sabouraud in a personal communication.

American peptone (Difco) must not be used.

Roentgen Diagnosis of the Pathological Appendix. Charles Eastmond, Med. Rec., October 15, 1921.

The roentgen examination of the appendix is exact in its findings and it is not too much to state that the patient suspected of having chronic appendicitis should have the benefit of a competent and complete X-ray examination before operation. First, to learn whether the disease does lie in the appendix and, second, to determine whether there is an associated pathology elsewhere in the neighborhood. Furthermore, with previous knowledge of the location of the appendix and of existing complications the operative procedures may be shortened and at the same time associated complications may receive proper treatment.

Injurious Combined Effect of Roentgen Rays or Radium, and Topical Remedies. George M. MacKee and George C. Andrews, Jl. A. M. A., November 5, 1921.

Roentgen rays and radium may make the skin hypersensitive to stimulating, irritating and caustic agents locally applied. As a rule, the skin will react normally to topical remedies in a month; but if there has been a reaction, the hypersensitiveness may endure for

several months, and if the skin has been permanently injured the hypersensitiveness may be detected for a year or two, or even indefinitely.

Stimulating, irritating and caustic remedies, when locally applied, produce hypersensitiveness to roentgen rays and radium for about a month. If the skin reacted to the local remedy, increased "radio-sensitiveness" is the rule for one month after the complete disappearance of the reaction.

A physician about to prescribe topical applications of an irritating nature should first ascertain whether the parts to be so treated have been recently irradiated or are to be irradiated.

A physician about to apply roentgen rays or radium to a patient should first ascertain whether irritating topical remedies have been recently used; and the patient should be cautioned against additional local treatment without the knowledge and consent of the physician who applied the roentgen rays or radium.

Shock and Fatigue with Acute and Chronic (Cytost-Anticytost) Reaction. Fenton B. Turck, Med. Rec., October 22, 1921.

Injuries to the animal cell body, in protozoa as well as in metazoa, liberate a substance which is called cytost. This substance is specific to the species and therefore shows its activity only in homologous cells or cell complexes.

This substance can be set free from the cells in which it is normally balanced by a counteracting substance named anticytost. The experimental production of cytost can be caused by mechanical or chemical means.

The phenomena created by cytost are of a physicochemical character. The quantity is determined by physical (electrical) means only. Protein activity is excluded because the cell product is incinerated in order to produce the dry substance containing cytost.

Cytost is a biological product, since immunization with this substance produces anti-cytost which is then present in the serum of the animal. It is therefore strictly an antigen-antibody reaction which produces symptoms of a definite nature.

The pathological changes caused by excess of cytost in the animal or protozoan body are of a toxic nature and the phenomena pro-

duced show no injury to the central nervous system which could be accused of being the origin of the pathological change.

The principles advanced in this article explain: (1) Acute pathological conditions—shock, eclampsia gravidarum, toxemia of pregnancy; (2) Chronic diseases, as arthritis, neuritis, metabolic disease, chronic toxicity, ulcers of the stomach, hereditary afflictions caused by toxic conditions of the mother; (3) "Infectious diseases," pneumonia, influenza; (4) Symptoms of total or partial starvation through over- or under-activity of cytot, constitutional diseases, rickets, and general debility.

Refractometric Studies in Human Syphilis with Special Reference to Changes During Treatment with Arsphenamin and Neo-Arsphenamin. Keichi Tokuda, Arch. Derm. and Syphil., October, 1921.

The general conclusion drawn from a review of the recent literature on refractometric studies in syphilis and other infectious diseases seems to be that increases in the globulins of the serum accompany severe infections or acute intoxications.

Refractometric studies were made upon thirty-two cases of untreated syphilis and the following observations are recorded:

There is a marked increase in the refractive index of the serum and also in the globulins in syphilis, especially in active secondary cases. This confirms the findings of Rowe.

The refractive index of the serum is highest in secondary cases, lowest in the congenital and is intermediate between these two in the tertiary cases. The figures for total proteins, albumins, globulins and the relative amount of globulin are somewhat higher in secondary than in tertiary syphilis, the figures for congenital syphilis being somewhat lower than those of the latter.

Considered in relation to the Wassermann reaction of the serums, before treatment, the strongly positive cases show values of total proteins, albumins, globulins and relative amount of globulins higher than the weakly positive cases.

During a course of eight intravenous injections of arsphenamin (0.4 to 0.6 gm.) and neo-arsphenamin (0.9 gm.), each drug being

given at weekly and semiweekly intervals, the refractometric studies (made before each injection) show these results:

Classified according to the Wassermann reaction of the serums before treatment, there are no sufficiently constant or striking differences to warrant differentiating between the strongly and weakly positive series.

Considered according to the intervals of injection, the relative amounts of globulins show more *rapid* decline during weekly arsphenamin than neo-arsphenamin injections.

During semiweekly periods of administration the changes are about the same.

Classified according to the degree of resistance of the patients to antisyphilitic treatment (as indicated by repeated Wassermann tests) it was observed that: When the Wassermann reaction remained persistently positive, the refractive index, the percentage of total proteins and the relative amount of globulins of the serum showed little or no tendency to drop below their original values. When the Wassermann reaction, on the other hand, became very readily negative, the curves fell, with more or less regularity during the course of injections.

Lymphocytosis as Diagnostic Sign of Chronic Periapical Dental Infection in Adults. Judson Daland, JI. A. M. A., October 22, 1921.

Small cell lymphocytosis with a corresponding decrease in the polymorphonuclear cells is an important diagnostic sign of periapical dental infection, the value of which is increased when leukopenia coexists.

Lymphocytosis occurred only twice in 100 cases of chronic disease when no focal infection existed.

Lymphocytosis indicates that toxins or streptococci, or both, are entering the blood.

Lymphocytosis usually disappears in from five to eight weeks after the removal of all foci of infection.

Lymphocytosis persisting after the removal of periapical infection usually indicates the presence of an undiscovered focus of infection.

The organism that produces lymphocytosis is usually *Streptococcus hemolyticus* or *Streptococcus viridans*.

Chronio periapical infection is usually nonpurulent.

A Study of the Rate of the Interstitial Growth of the Persistent Teeth of the Albino Rat, as Shown by Vital Dyes. John S. Marshall, Jr. Dental Research, June, 1921.

The injection of vital (azo) dyes at various intervals, particularly gentian violet, trypan blue, methylene blue, and naphthamine brilliant blue, leaves definite color lines in the dentine. The distances between these lines show the rate of interstitial growth of this tissue.

Alizarine sodium sulphonate is the only *red* vital dye, known to the author, that possesses the power to stain the dentine with definite color lines that can be seen under the microscope.

The *interstitial* growth of the dentine of the persistent teeth of the rat, as shown by azo dyes under the microscope, amounts approximately to 0.01 mm. per day.

The *extrusive* growth of the superior incisor teeth amounts to about 1.9 mm. per week; of the inferior incisor teeth, to about 2.3 mm. per week.

The *curvative* growth of the superior incisor teeth amounts to about 1.0 mm. per week; of the inferior incisor teeth to about 1.6 mm. per week.

The difference between the rates of growth on the labial and lingual sides of the incisor teeth is, on an average, 0.9 mm. more per week on the labial side than on the lingual.

Absolute accuracy in measurement is not claimed, but the figures given above are sufficiently precise to form the basis for future study.

Anesthesia in Nose and Throat Work. Emil Mayer, Ross Hall Skillern, Robert Sonnenschein, and William B. Chamberlin, Jr. A. M. A., October 22, 1921.

A study of the untoward happenings reported enable one to reach the following conclusions:

Deaths from the administration of local anesthetics are vastly in excess of the number reported in the medical journals.

In most instances convulsions are the first indication of toxic effects; consciousness is never regained and death ensues within a comparatively short time.

The customary dosage of local anesthetics varies from small amounts to very large ones.

There is no check on the manufacturer as to the comparative toxicity of the various batches of drugs that are placed on the market.

The freedom from ill effects noticed by so many who have used these drugs has made them oblivious to the likelihood of danger.

The presumption of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association, that there are many unrecorded deaths, is thoroughly substantiated.

The appointment of a commission to investigate further these deaths and take action thereon is vitally necessary.

Presence, Absence and Location of Râles in the Prognosis of Pulmonary Tuberculosis. Francis B. Trudeau, J1. A. M. A., October 22, 1921.

Cases in which no râles were found, either on admission or on discharge examination, show the highest percentage of "cures."

Those patients who entered the institution with râles but who lost them during their stay form nearly as favorable a group as those showing no râles at any time.

In patients who entered the institution without râles but who developed them during treatment, the prognosis is much more grave than in either of the two above mentioned groups.

In spite of the greater frequency and the more common findings of the tubercle bacilli in right upper lesions as contrasted with left upper, the prognosis is considerably more favorable in the former class of patients.

Basal râles should not be diagnosed as nontuberculous too lightly, for in nearly 50 per cent. in this series, tubercle bacilli were found in the sputum, and nearly 40 per cent. of these developed apical râles during their stay in the sanatorium.

The prognosis among the cases in which the râles were limited to one or both bases was not more grave than in those patients with râles over one or both upper lobes.

Distribution of Uric Acid in the Blood. Ruth C. Theis and Stanley R. Benedict, JI. Lab. and Clin. Med., September, 1921.

Uric acid was determined in plasma and corpuscles in 104 cases, 51 of which showed equal distribution; 45 showed plasma uric acid greater than corpuscle uric acid and 8 showed a greater amount of uric acid in the corpuscles than the plasma.

This relationship holds whether the blood is oxalated or defibrinated and does not depend on the pathologic condition.

Added uric acid did not penetrate the corpuscles in 70 per cent of 20 bloods studied. In 30 per cent of the cases the added uric acid was equally distributed between corpuscles and plasma.

The marked difference in permeability of the corpuscles of certain bloods for added uric acid is of interest, and suggests that other cells in the body may show similar differences in permeability. Such findings may tend to throw light on the questions involved in specific uric acid retention in the organism.

Acute Inversion of the Uterus. W. P. Manton, N. Y. Med. JI., October 5, 1921.

The diagnosis of complete inversion presents no difficulties; it is the partial type which is likely to mislead the practitioner and give rise to hasty and wrong conclusions. The bleeding incident to the mishap is likely to be through postpartum hemorrhage, and investigation is therefore postponed until an advanced stage of the dislocation has been reached. Shock may supervene after a prolonged and nagging labor, especially in nervous and hysterical individuals, and anxiety over the patient's state may mask the true conditions to the attendant's mind. In all such instances investigation bimanually is desirable and necessary as soon as the immediate symptoms have been relieved. Only by bearing the possibilities in mind is a successful diagnosis antecedent to successful treatment. In cases which

present no symptoms, a knowledge of beginning or accomplished inversion may be obtained only through a constant supervision of the uterus, particularly during the latter part of the second, and for a time after the completion of the third stage.

Aneurysm of the Vertebral Arteries. J. Floyd Morrow, Med. Rec., November 19, 1921.

Aneurysmal dilation of the vertebral arteries is a very rare condition.

The medulla oblongata and many of the cranial nerves are damaged by the aneurysm as is manifested by the resulting compression bulbar paralysis.

A correct diagnosis of vertebral aneurysm is difficult to make and it is likely to be made late in the progress of the disease.

The earlier the diagnosis of vertebral aneurysm is made, the more favorable will be the prognosis. In any event the prognosis must be considered grave.

Chronic Seminal Vesiculitis: Its Diagnosis and Surgical Treatment. Abr. L. Wolbarst, Amer. Med., November, 1921.

The diagnosis of seminal vesiculitis is made as the result of a series of data observed in the course of the examination, as follows: The history of a long-standing, uncured, urethral infection. The five-glass catheter test demonstrating the posterior adnexa as the source of the pus and shreds and discharge. Large, swollen and tender vesicles, felt per rectum. Cloudy urine filled with débris after vesicular massage (when such massage can be performed). Cystourethroscopy demonstrating the presence of a deformed, red and congested verumontanum, inflamed orifices of the ejaculatory ducts and adjacent tissues. Radiographs of the injected vesicle showing chronic inflammation (unnecessary in the average case).

It is important to bear in mind, however, that the prostate and the seminal vesicles are closely related, anatomically, physiologically and symptomatically. It is not always possible to differentiate between them. Nevertheless, it is within the truth to say that the

prostate is often held responsible for pathologic conditions prevailing in the seminal vesicles, with the result that treatment is misdirected and fails to bring relief to the patient.

Visceroptosis: Normal Incidence. A preliminary report. John Bryant, JI. A. M. A., October 29, 1921.

Visceroptosis is, in general, not progressive with age. This is due to the fact that, although the percentage of ptosis of certain viscera increases with age, this percentage increase is offset by a decreasing frequency with age in respect to other viscera.

Visceroptosis affecting one or more organs was present to some extent in 48 per cent. of all cases examined, it being extreme in 10.2 per cent. of the males and 19.7 per cent. of the females.

Visceroptosis affecting the liver, right and left kidney, stomach and pylorus, is acquired.

Visceroptosis affecting the large intestine is in both sexes largely congenital or developmental. The percentage frequency of ptosis of certain portions of the large intestine does, however, further increase with age in both sexes. The greatest discrepancy between the male and female in regard to the percentage frequency of coloptosis in the adult occurs at the ileocecal valve. Thus, this portion of the colon shows an extreme degree of ptosis in 12.1 per cent. of the males of all ages; this contrasts with an extreme degree of ptosis at the ileocecal valve in 39.4 per cent. of the females of all ages.

No normal standard of frequency of visceroptosis, based on unselected material, exists.

In the absence of such a normal standard, proper evaluation of the degree of deviation reported in any selected roentgenologic or other series of cases is impossible.

A standard of frequency of visceroptosis which may be considered adequate until corrected by future investigators is made available in tabular form in the present article.

Studies in the Standardization of the Wassermann Reaction. XXII. John A. Kolmer, Amer. JI. of Syphilis, October, 1921.

The influence upon complement-fixation reactions after the secondary incubation of an excess of antisheep hemolysin represented

by natural hemolysin in human sera, may be prevented by heating the tubes in a water-bath at 55° C. for ten minutes.

This period of heating prevents further hemolysis by the destruction of complement which thereby breaks up the hemolytic system.

Heating in a water-bath at 55° C. for ten minutes does not cause the hemolysis of sheep corpuscles.

The reactions observed after heating the tubes for 10 minutes at 55° C. after the secondary incubation followed by settling in a refrigerator until next day, are practically identical with the reactions immediately after the secondary period of incubation.

BOOK REVIEWS

The Rainbow String. By Algernon Tarsin. Illustrated by Anna Richards Brewster. New York: The Macmillan Company, 1921.

Six delightful fairy tales, rarely seasoned with the fragrance of Spring and dancing silvery moonbeams. They make a strong appeal to the mind of the reader, be he young or advanced in years, by the freshness of conception and the daring feats of excursions into the regions of the fairies' realms. In the doctor's waiting room they will readily attract the attention of the patients as well as their healthy chaperones.

The Glands Regulating Personality. By Louis Berman, M.D. New York: The Macmillan Company, 1921.

This is one of those books which the reader will open at random at any odd page, read that page and perhaps the next one to it, then lay down the book, recline in his chair, close his eyes and ponder. He will slowly digest every paragraph, every sentence, and then compare the ideas so convincingly advanced by the author, so truly portraying the personalities of men, with his own experiences in life, draw his own conclusions and in the end agree with the writer. He will repeat this manner of reading until he has made the whole

contents his own. He will be satisfied, for he has enriched his mind, he has learned. As an aid in diagnosis it will be of great assistance. The book promises to have a long life, a useful life, and will prove a wholesome recreation to a tired mind.

The Microtometist's Vade-Mecum. By Arthur Bolles Lee, Hon., F.R.M.S. 8th edition. Philadelphia: P. Blakiston's Son & Co., 1921.

This book may be considered as a most complete and stimulating book of reference for the research worker. It contains a great deal of new material and recent data. The section on protozoa has been rewritten, an article on "Fatty Substances" has been added, whilst that on "Teeth and Bones" has been revised. Special chapters or sections on "Chromatin, Chromosomes, Nucleoli, Glycogen, Iron, Yolk, Fat, Mitochondria, Golgi Apparatus, Benzidine Dyes, Mammalian Embryological Methods" have been added, and many other improvements have been made. A special chapter for students enhances the usefulness of the book. The chapter dealing with "Tissue Culture" is new. The typography of the book is very good and an excellent index adds to its value.

Laboratory Course in Histology. By Adolph Elwyn, A.M., and Oliver S. Strong, Ph.D. New York: Physicians and Surgeons Book Company.

This book has been written for the students of the College of Physicians and Surgeons, Columbia University, New York. It will prove a useful book to them as to any other student of medicine. The histology of the nervous system has received special attention and proper directions cover the microscopic work of the course in neuro-anatomy.

Blank pages for annotations and individual memoranda will be welcomed by the student. The book is concise but complete and calculated to economize the time of student as well as teacher.

Abdominal Pain. By Norbert Ortner, M.D. Translated by Wm. A. Brams. New York: Rebman Company, 1922.

This is not a textbook and not intended to be such. The differential diagnosis of "abdominal pain" is perhaps one of the most difficult problems which the medical man has to encounter in his everyday practice. The author seeks to place before the reader in short, crisp sentences every detail at his command which aids in precisely locating the seat of the pain and thus to arrive at a decision as to the nature of the cause that produces the symptom, and establish a final and accurate diagnosis. It seems that he has succeeded in giving a clear definition of pain no matter in what part of the abdominal region it may be located and indicates the way with precision how to find and identify it.

He was guided in his efforts by the teachings of his former master, Doctor *Neusser*, with whom he often discussed the idea of writing a comprehensive work on the Symptomatology of Internal Diseases. Unfortunately *Neusser* died before this ambition could be realized. But *Ortner* followed in the footsteps of *Neusser* and for years garnered the points which are now put together in this remarkable book. The author assembles and co-ordinates the rich material which accumulated during the long era of his practice and personal observation, and presents the fruits of clinical experience in a practical and useful form. He himself devoted much time and thought to the comprehensive index at the end of the book which will give the reader quick reference to any desired detail.

Mr. Waddington of Wyck. By May Sinclair. New York: Macmillan Company, 1921.

This is a very powerful character study of a selfish, conceited gentleman, Mr. Horatio Bysshe Waddington, who lived on his estate in the Cotswolds, a beautiful range of wooded hills in Gloucestershire, England. He engages a secretary, Ralph Bevan, to help him in writing "Ramblings in the Cotswolds," but tires of him because Ralph has ideas of his own, and also because Mr. Waddington thinks that Ralph is fonder of Fannie (Mrs. Waddington) than of his work. Barbara Madden, the daughter of an old friend of the

family, is invited to take Ralph Bevan's place. Barbara is a capable young woman who plays her part throughout the story with much tact and success. She eventually marries Ralph Bevan, to the greater chagrin of Mr. Waddington.

Fannie, no doubt, is very fond of her husband, but she does not know how to hold his love for her because her tastes and interests in life do not run concurrently with those of her husband, who, although indolent by nature, yet has an ambition to shine as an author. She makes light of this, and by casual, flippant remarks leads Horatio into entanglements with a calculating, shrewd little widow, Mrs. Levitt. Mr. Waddington gets into trouble, and only through the clever handling of the affair by his secretary, Barbara, he escapes the unpleasant consequences of a scandal.

Mr. Waddington now makes the serious blunder of misinterpreting the kind services rendered to him in this affair by his secretary, and thinks Barbara is in love with him, and he proposes to her to marry him after he has obtained a divorce from Fannie. Barbara rejects him, flies the house, and marries Ralph Bevan.

Undoubtedly Horatio Bysshe Waddington was lonesome in his own house chiefly because he was a very susceptible gentleman of leisure with no occupation in life. A man without a purpose, but a handsome income, enjoying all the comforts of a rich home, who has no business cares or worries to take up his time, is bound to seek excitement somewhere, and as a natural consequence falls into one or the other of the many pitfalls that surround such people. With careful handling and prudent tutoring, his wife might have made a better man of him, or at any rate a useful member of the human society.

The book is worth reading and will be found fascinating throughout. Delicate situations are adroitly treated; some passages are even amusing, especially that dealing with a political subject—*i.e.*, Bolshevism in England. A pleasant remembrance will linger in the mind when the volume is relegated to the shelf after its perusal.

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Special Articles

PITUITARY DISORDERS IN THEIR RELATION TO
ACROMEGALY (HYPER-PRE-PITUITARISM), WITH
SUGGESTIONS FOR THE USE OF A MORE
PRECISE TERMINOLOGY

By E. B. KRUMBHAAR, M.D., PH. D.

Director of the Laboratories of the Phila. Gen. Hosp., Assoc. Prof. of
Pathology, U. of P. Grad. School of Med.

(From the Laboratory of Post Mortem Pathology of the Phila. Gen. Hosp.)
READ BEFORE THE PHILADELPHIA PHYSIOLOGICAL SOCIETY, JAN. 16, 1922.

Diseases of the pituitary gland possess a peculiar interest not only for the internist or ophthalmologist and neurologist, on account of the character of the symptoms produced, and for the surgeon on account of the problems of operative intervention, but also to the physiologist and "dynamic pathologist" concerned with the relation of this structure to general body functions in health and disease. In fact, our present knowledge of the pituitary has perhaps been chiefly advanced by the clinical study of cases of disordered function, a belief which has made me think it worth while to present the accompanying series of cases. Since the appearance of *Cushing's* masterly monograph 10 years ago, but little practical progress has been made, so that we have not yet fulfilled his prophecy that "we are unquestionably approaching a stage in our knowledge when the classification or grouping of the cases here employed as a provisional basis for clinical use, will no longer be necessary." For instance,

in the most recent consideration of this topic,¹ the pituitary is not once considered as other than a single gland, a failure that would be much less apt to occur if a more precise terminology were in vogue. Before discussing cases in detail, therefore, I would like to make a plea for the use of more specific terms that we have found useful in our discussions in these laboratories.

The pars intermedia and the pars neuralis are, though anatomically distinct, considered today with propriety from a functional point of view as the "posterior lobe." It is therefore obvious that disturbances of pituitary function may be grouped under 5 heads: 1, overfunction of the anterior lobe, 2, underfunction of the anterior lobe, 3, overfunction of the posterior lobe, 4, underfunction of the posterior lobe, 5, perverted function of one or both lobes. In spite of this obvious state of affairs it is still customary (perhaps on account of the unavoidable length of more precise terms) to use the older terms hyper, hypo, and dyspituitarism. This lack of precision places such a handicap on the intelligent discussion of the nature of disorders of pituitary function and of given endocrine cases, that I venture to recommend the use of more precise, though clumsier terms. If "hypophysis" and "pituitary" were not so firmly established as synonyms, one might take advantage of their etymological derivations to designate the first 2 classes as hyper- and hypo-pituitarism, and the next 2 as hyper- and hypo-hypophysiasm, disregarding the fact that the p. intermedia probably has an ectodermal origin.

With the addition of an extra syllable, however, we may use: (1) hyper-pre-pituitarism; (2) hypo-pre-pituitarism; (3) hyper-post-pituitarism; (4) hypo-post-pituitarism; (5) dyspituitarism.

1. As hyper-pre-pituitarism are considered such growth changes as gigantism and acromegaly which are commonly associated with hyperplasia or adenoma of the acidophile cells of the anterior lobe.

2. Hypo-post-pituitarism is manifested, in the present state of our knowledge at least, by dwarfism. There are but few definite clinical observations to support this view, but it is probable this deficiency is a factor in many cases of dwarfism. The possibility of such a lesion is well demonstrated by a recent finding in these laboratories of almost complete loss of the anterior lobe. (Fig. 17)

3. Hyper-post-pituitarism is likewise a rather hazily understood

¹ Hutinel, V. Mailliot, *Dystrophies Glandulaires et Mono Symptomatiques*, Annales de Med. '21, X. 100.

condition. Lessened sugar tolerance, increased basal metabolism and other antitheses of the 4th class might logically be included here and in fact have been so placed in a few instances.

4. Hypo-post-pituitarism includes a large and better known group of disorders such as are prominent in *Fröhlich's* syndrome and similar disturbances of metabolism, cardio-renal-vascular regulation and sexual characteristics.

5. Under dyspituitarism should be grouped following *Cushing's* suggestion, mixed or transition cases, i.e., any perversions of the functions already referred to or those cases which have not shown a preponderance of symptoms attributable to any one lobe. Here also must be placed cases that have progressed from one of the first four groups to a composite mixture of symptoms referable to hyper- or hypo-function of both lobes, as *Cushing* has demonstrated to be so frequently the case in acromegaly. In using such terminology it must also be borne in mind that the relation of certain clinical factors of considerable importance, such as "neighborhood" or distant cerebral symptoms and of the other glands of internal secretion have been left out of consideration.

To return to the relation of pituitary tumors to acromegaly let it suffice here to recall a few prominent landmarks:

1. Their frequent association, which was firmly established by clinico-pathological evidence within a few years of Marie's² original description of this striking clinical condition in 1882. 2. *Massalongo's*³ and *Tamburini's*⁴ hypothesis that acromegaly is due to a hyperfunction of the anterior lobe (hyper-pre-pituitarism); with *Massalongo's* corollary that giantism results if the epiphyses are not yet ossified, this is now the most widely accepted view. 3. *Benda's*⁵ demonstration that increase of the acidophile cells of the anterior lobe was probably the important factor in producing hyperfunction; 4, the discovery of various accessory hypophyses (a, hypophysis accessoria cranii; b, h. a. canalis craniopharyngea; c, h. a. pharyngea); 5, and by *Erdheim's*⁶ demonstration of an acromegalic with a normal hypophysis but with an acidophile adenoma of the pharyn-

² Marie P., *Revue de Med.*, 1886, VI, 297.

³ Massalongo, R., *Riforma Med.*, 1892, VIII, 74, 871.

⁴ Tamburini, A., *Riv. Sper. di freniat.*, 1894, XX, 559.

⁵ Benda, C., *Berl. Klin. Woch.*, 1900, XXXVII, 1205.

⁶ Erdheim, J., *Franf. Zeitsch. of Pathol.*, 1910, IV, 70.

geal hypophysis. The arguments for and against the hyperfunction conception of acromegaly are to be found in *Cushing's* book (page 250 et seq.). In view of *Erdheim's* discovery, however, it seems only proper to throw out of count all cases of acromegaly with normal pituitaries in which the accessory hypophyses have not also been most carefully studied. In cases of acromegaly with non-acidophilic tumors of the pituitary the possibility of a progression beyond the acidophile stage must also be borne in mind. Even when many of the so-called exceptions to the hyperpituitarism theory are put in the suspicious class by such means, however, it must be recognized that other valid exceptions still exist, and will probably increase in number. *Bailey*⁷ has recently supported this view with the cases of *Cagnetto*, *Zak*, *Kraus* and others (acidophilic increase without acromegaly) and with *Yamada's* case of acromegaly without pathological change in the pituitary. I cannot see, however, that adequate evidence has been produced to support the view that the hyperplasia, when present, is secondary to some biochemical disturbance.

CASE 1—(P.G.H. Autopsy No. 5645). Chronic Acromegaly. No signs or symptoms of cranial disturbance. Death from tuberculous pericarditis and cardiac failure. At autopsy—acidophile adenoma of anterior lobe of pituitary.

History—J. D., negro, 43, laborer, admitted to the service of Dr. Riesman in the Philadelphia General Hospital on October 25, 1920, suffering from shortness of breath and other signs of marked cardiac decompensation.

The diagnosis of acromegaly was made by one of the staff as he saw the patient arrive in a taxicab. No change in his appearance noticeable either to himself or his friends, had occurred in at least the past 21 years. Photographs or details of size of hands and feet were unfortunately not available.

For three months he had been suffering from shortness of breath on exertion and evening edema of ankles and feet. Before that time he had successfully labored in a meat-packing establishment carrying heavy cases of ice and boxes. He was usually called on to do the hardest lifting on account of his great strength. Three months before admission he weighed 248 pounds.

⁷ Bailey, P., Jour. Med. Research, 1921, XLII, 349.

Except for gonorrhea at 18, and a chancre at 23, he had always been healthy and strong, and had never taken a dose of medicine until his present illness. Was never married. Was a heavy whisky drinker and user of tobacco.

His father, who died at 63 of heart trouble, was said to have been a very large man and to have had a large head and hands. Other family history negative.

Examination:—Showed a middle aged, colored “giant” (as he was 5' 9" tall, this must have referred to his great muscular development). Head “diamond” shaped, greatest circumference 25".



FIG. 1.—Case 1. Showing large jaw and prominent soft tissues of nose and mouth.

Occipito-mental 12", occipito-frontal 10". Face covered with short, kinky, gray-black hair; hair normal; eyeballs prominent. Pupils and eyesight normal. Tongue very large. Teeth in fair condition, spacing between teeth of upper row. Hands 8½" long and very broad; feet 11½" long, very broad with short, stubby toes. Heart dullness increased, action arrhythmic, with mitral systolic murmur, weak muscle sounds and roughened second aortic. Lungs: signs masked by loud bubbling râles. Death from pulmonary edema.

Clinical Diagnosis:—Acromegaly, acute myocarditis with decompensation, pulmonary edema.

Autopsy:—(Drs. B. Crawford and N. Winkleman.)

Skull unusually thick, especially in the frontal and occipital region, in one area measuring 2 cm. in diameter. The dura was normal; the pia only slightly injected and presented no peculiarities. The brain itself was of fairly good size and weighed 1,350 gms. It was not edematous. On removal of the brain it was noted that there



FIG. 2—Case 1. Base of brain showing acidophile adenoma of pituitary.

was a large tumor of the pituitary region which pulled the optic nerves taut and when this tumor was lifted up with the pituitary, the fossa was found to be very much deepened and widened and the tumor adherent to the surrounding periosteum and difficult to separate from it. At the anterior angle of the tumor a part of the mass had broken through the capsule which surrounded it and presented as

a small mulberry mass about the size of a pea. At the lower surface of the tumor there was a fairly definite cyst which ruptured on removal and extruded a semi-fluid gelatinoid material. The pituitary and tumor were removed en masse with the surrounding bone of the sella turcica. The tumor itself was about the size of a small lemon, soft, with a definite capsule, and on its upper surface the pituitary

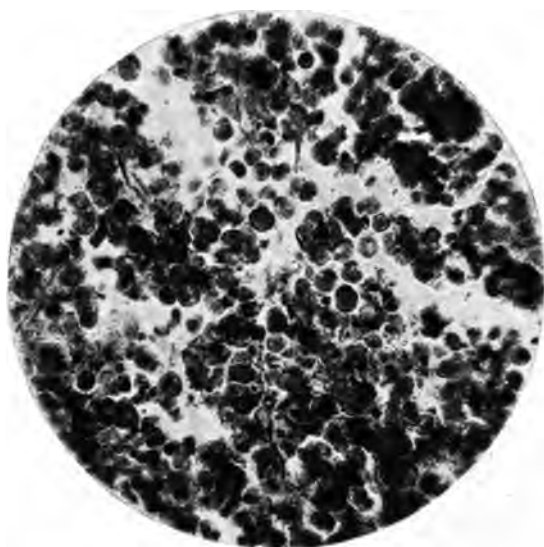


FIG. 3.—Case 1. Photomicrograph of adenoma, showing uniform type of cell, small nucleus, much protoplasm, containing acidophile granules. Note absence of normal acinous arrangement of blood vessels.

gland presented as a small flattened ribbon-like affair that was difficult to differentiate from the tumor mass. The optic chiasm was flattened out and extended back to the corpora mammillaria which was crowded posteriorly and also flattened. The tumor was vascular.

On histological examination this tumor was seen to be composed almost entirely of cells closely resembling the typical acidophile cells of the anterior lobe. The arrangement in acini was very imperfect and connective tissue stroma very scanty. Blood vessels were reduced in number and only moderately filled with blood corpuscles. The generous protoplasm of the acidophile cells was packed with coarse acidophile granules, the small compact nucleus being eccentrically placed. They varied considerably in size. Less than 1%

were basophile and chromophobe cells, the latter being the more numerous. The mulberry-like mass presented a similar histological appearance without evidences of malignancy. A small remnant of the anterior lobe was found compressed between the adenoma and the pars intermedia.



FIG. 4.—Case 2. Showing separation of teeth of lower jaw.

The other pathological findings were chronic obliterative tuberculous pericarditis, with cardiac hypertrophy and dilation; lobular pneumonia with gangrene of the left lower lobe; chronic fibrous tuberculosis of lungs and lymphnodes, and chronic fibrous pleurisy.

CASE 2—(P.G.H. Autopsy No. 6286). Very early acromegaly, diagnosed clinically by recent clubbing of fingers and separation of lower teeth, with suggestive facies. No symptoms of cranial disturbance. Death from pneumonia and lung abscess. At autopsy, hyperplastic pituitary, chiefly due to acidophile cells of anterior lobe.

History:—E. F., white, 43, janitor, admitted to the service of Dr. Sailer in the Philadelphia General Hospital on September 30, 1921, suffering from cough, dyspnea and blood spitting.

Beginning acromegaly was suspected by Dr. Sailer on account of the patient's facies and markedly clubbed fingers and the diagnosis strengthened by the fact that the patient's lower teeth were considerably separated and that the spaces had only begun recently to



FIG. 5.—Case 2. Showing clubbing of fingers.

increase. Unfortunately the patient's pulmonary condition was too extreme to permit proper pituitary tests. Neither he nor his friends had noticed any changes in his appearance other than those mentioned.

The patient had been a motorman until he had a bad attack of influenza in 1917, from which he never recovered. Had only been able to do the lightest janitor's work for 2 years, suffering from a bad cough with copious expectoration, loss of weight and evening rises of temperature. For a week before admission these symptoms had been worse, with blood-tinged sputum.

He had had scarlet fever and otitis media at 16. Habits irregular, but denied venereal disease. His mother died of influenza in 1917 and one brother of "galloping consumption."

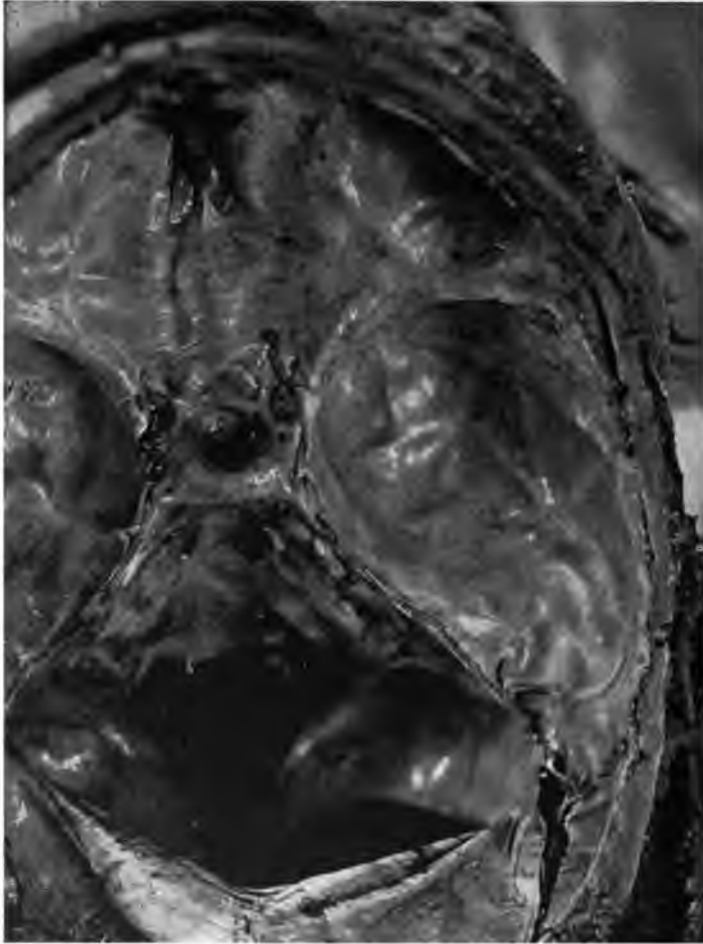


FIG. 6.—Case 2. Base of skull, with enlarged, deepened pituitary fossa.

Examination:—Patient prefers sitting posture and is very dyspnoeic. Pupils irregular but react promptly to light and accommodation. No disturbance of vision. Hair normal. Teeth in bad shape,

and lower teeth widely apart. Tongue normal. Thyroid not palpable. Fingers short and fat, with marked clubbing of tips. Toes also clubbed. The lungs showed signs of consolidation of left base and impairment of left apex. The heart was enlarged with a systolic murmur transmitted to the axilla. The electrocardiogram

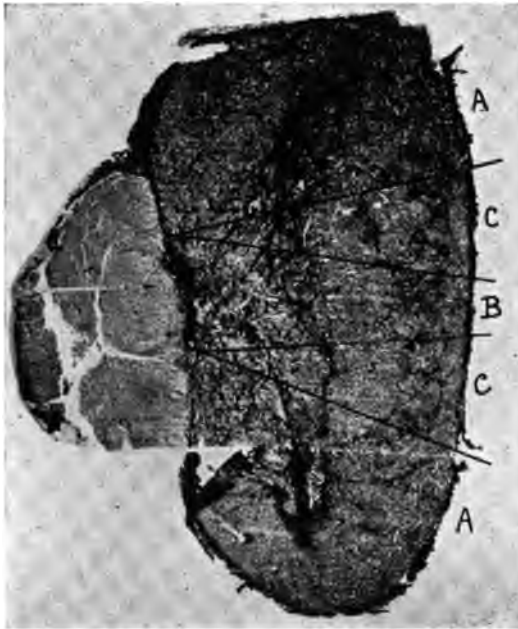


FIG. 7.—Case 2. Transverse section of pituitary, showing hyperplasia due chiefly to acidophiles. Areas of the 3 types of cells: (a) acidophiles greatly predominant; (b) basophiles numerous; (c) chromophobe cells [degenerated chromophiles (?)] predominant.

showed left ventricular preponderance. Leucocytes 34,400, polys 82%, lymphocytes 17%, mononuclears 1%, R.B.C. 5,120,000. Wassermann 4 plus in all antigens. Blood pressure 110—70. Urine: heavy trace of albumin, hyaline casts. In spite of digitalis and neoarsphenamine the patient grew steadily weaker and died from pulmonary edema.

Clinical Diagnosis:—Beginning acromegaly, lobar pneumonia, chronic mitral endocarditis and nephritis, syphilis, pulmonary edema.

Autopsy.—(Drs. Weiss and Patten.) Meninges normal except for pial thickening of interpeduncular space. Skull normal. Brain weighs 1,475 gms. and is apparently normal. The pituitary body, cupped on the superior surface, is distinctly enlarged, measuring 17x12x7 mm. The post lobe is of normal size, and the infundibulum is normal but somewhat to the left of the midline. The sella



FIG. 8.—Case 2. High power of area A. All the larger cells and many of the smaller are acidophiles, the remainder chromophobes.

turcica is unusually deep, with a normal floor, and slight hypertrophy of the postclinoid processes.

On *histological examination* the acidophile cells are found to be greatly predominating in almost one-half (20 out of 45 low power fields) of a transverse section of the anterior lobe. This predominance is especially marked in symmetrical postero-lateral areas of the anterior lobe (see Fig. 7) but is not limited by a connective tissue framework that extends fanwise from the pars intermedia. In these areas acidophiles were computed to comprise 83.7%; basophiles 3.4%; chromophobe cells 12.9%. In a mesial belt of the same section (occupying 7 of 45 lower fields) basophiles are much more prominent, though acidophiles and chromophobes are still to be

found in considerable numbers (acidophiles 16.9% ; basophiles 53.6% ; chromophobe cells 29.5%). The basophiles showed a slight tendency to vacuolization. In the intermediate areas chromophobe cells are more numerous. Many of these, however, are large cells with all the characteristics of a chromophile cell except the granules, so that it seems probable that they are altered or degenerated cells of the acidophile or basophile type. A differential count in these

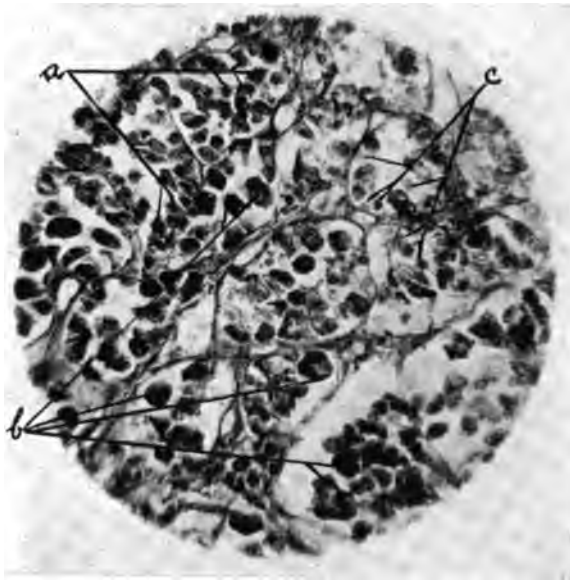


FIG. 9.—Case 2. Area B (a) acidophiles; (b) basophiles; (c) chromophobes.

regions reveals: acidophiles 7.5% ; basophiles 13% ; large chromophobes (?) 30% ; small chromophobes 49.5%. It is, therefore, obvious that not only is the anterior lobe considerably increased in size but that the proportion of acidophiles within the lobe is also considerably increased above normal.

The following body measurements are pertinent: Length 170 cm., weight 190 lbs. ; circumference of head 60 cm. ; length of nose 7 cm. ; torso—leg ratio 45.6x96.2 cm. ; length of arm 36, of forearm 30; of hand 21 ; of middle fingers 15 ; circumference of hand 22.5 ; length of thigh 42.5 ; of leg 45 ; of foot 26 ; circumference of foot 25 cm.

The other pathological findings were: pulmonary abscess of left upper lobe with bilateral suppurative pneumonia, chronic mitral and aortic endocarditis.

CASE 3:—(Pa. Hospital Autopsy No. 1759.) Acromegaly of 2 years' standing, failing vision of right eye for one month. Headache 2 weeks. Cause of death not ascertained (cerebral pressure ?).



FIG. 10.—Case 2. Area C, lettering as in Fig. 9.

At Autopsy, degeneration cyst of pituitary, with remnants of adenocarcinoma (?) of anterior lobe in cyst wall.

History:—C. V., white, 23, butcher, admitted to the service of Dr. Newlin in the Pennsylvania Hospital, October, 1914, on account of headache. The diagnosis of acromegaly had been made on a previous admission in 1912. The onset of the disease was first noticed 2 years previously when his hands were found to be getting larger. Shortly after his feet began to enlarge, with a change in the size of his shoes from 7½ in 1911, to 11½ in 1914. He had constant headache for 2 weeks before admission for the first time since his sick-

ness began. One month before, he noticed that sight in his right eye was failing. Vision of left eye and hearing normal.

In 1913, when he was admitted complaining only of pain in his left leg, the peculiar development was noted as being more marked in the soft parts than under the X-ray. The sella turcica was found to be $\frac{1}{2}$ larger than normal and the postclinoid processes almost



FIG. 11.—Case 3. Cyst wall with infiltrated carcinomatous tissue.

destroyed. Eyes reported normal except for an external strabismus of the right (Shoemaker). His past history and family history were negative.

Examination:—Gigantic in size and development (183 cm. tall). Head abnormally large (59 cm. in circumference). Eyes divergent, fixes with left eye, ocular movements full. Right eye blind, no light perception; left eye shows temporal hemianopsia. The jaw is

large and the distance from the nose to the tip of the chin increased. The upper teeth show some spacing, the lower teeth do not. Hair of scalp and body normal. Ears, nose, tongue and mouth very large. Does not appear to be mentally acute. Enlargement of upper extremity involving distal ends of radius and ulna. Hands large and spade-like, with thickening of finger pads; but have not lost their symmetry. Grip weak. Feet tremendously enlarged (30.5 cm. long). Wassermann negative.

At Autopsy:—(Dr. Samuel.) The skull was found to be relatively thinner than the other bones. The sella turcica was broadened and thickened. The pituitary was replaced by a cyst under tension, measuring 4x6x3 cm. in diameter. The walls were very thin and translucent, with evidence of a thin, compressed layer of glandular tissue on one side. The optic chiasm was stretched over the belly of the cyst.

Histological examination of this area showed atypical acinous epithelial cells with large nuclei, varying considerably in size and in a few instances undergoing mitosis. They were not enclosed in acini but interspersed with varying amounts of connective tissue that produced not infrequently an effect of clumping. This connective tissue was both of a sparse cellular and dense fibrous type. The wall of the cyst was not lined with cells. A few other microscopic cysts were also found.

The autopsy also disclosed a marked congestion of the abdominal viscera. The thyroid, thymus, adrenals and pancreas were normal. The testicles showed an increased amount of connective tissue between the lobules. An acute interstitial nephritis was apparently the cause of death.

CASE 4:—(Pa. Hospital Autopsy No. 1126, Bulletin Ayer Clinical Laboratory, Philadelphia, 1908, No. 5, p. 32.) No signs of acromegaly or other disorders of pituitary function. Signs of intracranial pressure for 6 months. Death from acute endocarditis and bronchopneumonia. At autopsy a chromophobe adenoma of the anterior lobe of the pituitary, with preservation of the compressed anterior and posterior lobes.

History:—W. B., 43, negro, laborer, admitted to Pennsylvania Hospital, August 11, 1908, during the service of Dr. Newlin. His

family history was negative. He was born in the eighth month of pregnancy and was weak till he was 10 or 12 years old. He had temporary lateral curvature of the spine which he outgrew. At 18 he was strong and healthy. He always worked at hard manual labor. His wife, married ten years ago, says he was as corpulent



FIG. 12.—Case 4. Base of brain, showing chromophobe adenoma of pituitary.

and strong then as at present. She had one abortion in the seventh month of pregnancy, and had one child which lived only a few hours. Venereal history was denied. Sexual habits normal. The patient always drank to excess and smoked tobacco. "He always seemed to suffer in the top part of his head" and has always had headaches

since a small boy. These have been worse since his skull was fractured (?) by a blow from an iron gate, three years ago.

Last winter he first noticed attacks of dizziness, nausea, vomiting and increased headache. The sight of both eyes began to get dim. Lately the attacks have come about once a week. On the day of his admission he had an attack in which he was unable to stand upright or to speak, though he was conscious and evidently understanding what was said to him. When he arrived in the patrol wagon he was unconscious and limp. Later he became stiff all over and died two hours after admission without regaining consciousness. The urine contained albumin. No physical examination made.

At Autopsy:—(Dr. Krumbhaar.) The following measurements were taken: The body weighs 195 lbs., and measures 175 cm. in length; circumference of head, 57.5 cm.; from symphysis of chin to angle of jaw, 12 cm.; chest 108.5 cm.; abdomen 98.5 cm.; from top of sternum to symphysis of pubis 58 cm.; from tip of acromion to styloid process of radius 62 cm.; circumference of arm 35 cm.; of forearm 30 cm.; from styloid process of ulna to tip of forefinger 19 cm.; from great trochanter to internal malleolus 88 cm.; circumference of thigh 59 cm., of calf 38 cm.; length of foot 27.5 cm.

Brain: On removing the calvarium, which is normal and not thickened and shows no signs of fracture, the meninges appear normal and the brain tissue somewhat soggy. The lateral ventricles are distended with fluid. Weight of brain 1,240 gms. The pituitary fossa is found to be much enlarged and to be filled with a humor-like mass about the size of a crab-apple. The fossa is shallow and has a much wider diameter than normal. The posterior clinoid processes are obliterated.

The tumor occupying the sella turcica is reddish-gray, soft and almost fluctuating. It shows some dark red areas and dilated vessels. On section it is found to have a similar hemisphere (about twice the size of the other) which projects up into the right frontal lobe. On its anterior surface is a smaller lobule the size of a cherry. The two hemispheres are constricted about the middle by the optic chiasm anteriorly and by the optic tracts posteriorly. Until the pia was dissected only the half below this constricting girdle was visible. The cut section of this tumor mass bulges, is moist and of a reddish flesh color. The optic chiasm and tracts are much stretched and

attenuated by pressure from the tumor. On separating the loose connective tissue which joins them to the tumor, it can be lifted out of its socket except for a long, thin, delicate pedicle joining it to the base of the brain.

Sections from all parts of this tumor show a very cellular tissue that varies but little in different parts. Remnants of both portions

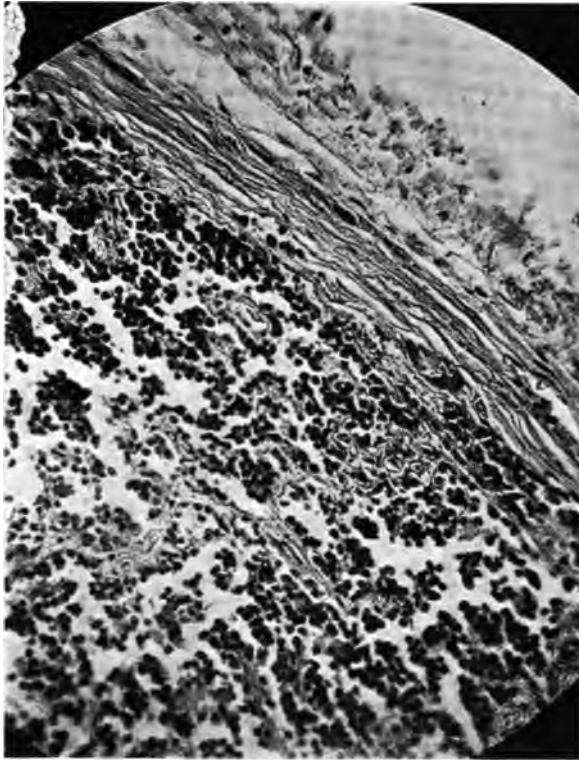


FIG. 13.—Case 4. Encapsulated adenoma, composed of small chromophobe cells. of the normal gland are found stretched about it like an envelope, with columns of compressed cells in the anterior lobe. The tumor is bounded by a fairly thick, regular capsule which in no place appears to be infiltrated by the cells of the mass of the tissue. The tumor cells have a small round, highly chromatic nucleus and either no visible protoplasm or considerable homogeneous protoplasm, the

latter appearing not unlike a plasma cell. Nothing approaching chromophile granules is demonstrable by ordinary or special stains. Frozen sections and teased specimens show the same character of cell. The interstitial tissue is very scanty for the most part showing as extremely fine, delicate blue fibres (Mallory's stain) or occasionally short sections of fairly small trabeculæ. Special stains for neuroglia fibres (Weigert and Mallory), myelin sheaths (Weigert) and elastic fibres (Verhoeff's) fail to show their presence. Small capillaries are fairly numerous in some sections (especially those from the superior and posterior portions) but are very sparse in other parts. A very few larger vessels are found in the tissue, but even in these only a few scattered elastic fibres can be found.

In addition the autopsy showed an acute vegetative mitral endocarditis, lobular pneumonia, marked congestion of viscera, chronic mitral and aortic endocarditis with cardiac hypertrophy, chronic pleurisy and arteriosclerosis. The other glands of internal secretion were normal, except for a marked congestion of the parathyroids and localized areas of fibrosis in the testicles which were equalled by sclerotic changes in other organs.

CASE 5:—(Philadelphia Gen. Hosp. Autopsy No. 6048.) Failing vision beginning 3 years ago and progressing to total blindness with coincident signs of hypo-post-pituitarism. No relief from decompression operation. Cause of death, brain tumor. At autopsy, cyst of pituitary with destruction of both lobes and of optic chiasm. Visceral hypoplasia.

History:—P. J., mulatto, 29, stevedore, admitted to the service of Dr. Lloyd in the Phila. Gen. Hosp., Dec. 12, 1920, complaining of lost vision and headaches. His eyesight began to fail in 1918 after a severe attack of influenza. It got better in the spring of 1919 and he was able to work till April, 1920 when it became so bad that he could not see enough to get around. It grew gradually worse until 2 weeks before admission, when spells of weakness and staggering supervened. He has been subject to frontal headache since he was "beaten up" in a riot 4 years ago, but headaches have been much worse since May, 1920. He states that he has not had an erection for 4 years and had no sexual desire for 2 years. He always feels cold and generally uncomfortable, and has recently had several sudden attacks of projectile vomiting.

He had measles as a child and influenza in 1918. Admits gonorrhea but denies any other venereal disease. He stopped smoking cigars some time ago and never drank. He had eye trouble in 1916, but was greatly improved after his eyes were refracted at the Wills Eye Hospital. His wife and 2 children are healthy; his family history negative.

Examination:—Is well nourished, but the fat distribution is of feminine type, body hair sparse, and external genitalia undeveloped. The left pupil larger than right, laterally oval, and reacts very slightly to light, while the right pupil fails to react. Vision in left eye 1/45, with concentric contraction of visual field. Right eye blind. No extraocular or other motor palsies. Sensation, including taste and smell, not impaired. Reflexes normal, except for absent Achilles jerk. Babinski negative. Hearing and Barany tests normal. Sugar tolerance increased (on 3 occasions 150, 200, and 250 gms. of glucose failed to appear in the urine). X-ray (13309) shows sella turcica greatly enlarged and floor almost entirely destroyed. Urine and Wassermann negative. Hemoglobin 70%; R.B.C. 3,810,000; Lcts. 9,200; (polys 51%). Blood pressure 96-60.

With a fairly certain diagnosis of pituitary disease a subtemporal decompression was then performed as the more dangerous attempt at extirpation did not seem justifiable with the advanced state of the optic atrophy. This gave only temporary relief, and the administration of pituitary extract proved entirely ineffectual. Some 3 months later he gradually grew weaker, refused nourishment and died with the usual signs of increased intracranial pressure.

At Autopsy:—(Drs. Lucke and Winkelman.) The body measured 165 cm. and weighs 70 k. Bone development normal, but soft parts show a distinct feminine habitus (fat distribution, curved hips and thighs, mammary glands slightly prominent, etc.). Beard and mustache very scanty with downy hair (equalling that of an average boy of 15). Lips fleshy. Skull, hands and feet normal size and shape. External genitalia small.

The brain weighs 1,580 gms. and is slightly edematous. At the base a large greenish mass, 5x9 cm., occupies the pituitary fossa and a deep depression in the cerebrum. A locule 4 cm. in diameter extends in the middle fossa beneath the right temporal lobe. On cutting transversely through the cyst it is found to extend through

the basal ganglia on the right side destroying the greater part of the optic thalamus and invading the internal capsule. The roof of the cyst is a definite wall in the basal ganglia with hardened and brownish discolored tissue beyond. The optic nerves are flattened almost to paper thickness with practically no remnants of the chiasm re-



FIG. 15.—Case 5. Base of skull, with enlarged sella turcica communicating with left sphenoidal sinus. Internal carotid arteries indicated by probes.

maining. 80 cc. of brownish cyst fluid had a sp. gr. of 1.027 and contained albumin, 50 mgm. sugar per 100 cc., 590 mgm. chlorides per 100 cc. and many cholesterol crystals, with a positive Liebermann Burchard test for cholesterol. No histological examination was made, as no remnants of the pituitary gland could be found.

The testes are small ($3 \times 1\frac{1}{2}$ cm.) and moderately firm. Cut surface shows many pale, fibrous streaks. The adrenals are about $\frac{1}{2}$ their normal size and measure only 2 mm. in diameter. The

yellow outer cortex and brownish inner cortex are equally thin and the grayish medulla somewhat congested. Microscopically, considerable fatty degeneration. Thyroid normal. Thymus not found. The aorta hypoplastic ($4\frac{1}{2}$ cm. in circumference) but of normal texture. The heart is pale and small (weight 210 gms.). The



FIG. 16.—Case 5. Base of brain showing large pituitary cyst, with a large lobule under right temporal lobe. The flattened chiasm constricts the center of the cyst.

valves normal; the foramen ovale patulous to a small probe. A mild chronic nephritis and fibrosis of the spleen were also found.

Comments—Case 1 (J. D.) is a frank case of acromegaly in which an acidophile adenoma of the anterior lobe was found at autopsy. It is, therefore, in accord with the theory that an increase of the acidophiles, representing an increased activity of the anterior lobe, is responsible for the development of acromegaly.

CASE 2 (E. F.), which also supports this theory, is of especial interest as an extremely early case of acromegaly, perhaps the earliest recorded that has come to autopsy. The distinct (though not extreme) hyperplasia of the anterior lobe had been sufficient to enlarge the sella turcica, but could not conceivably have exerted any increase of intracranial pressure. It is especially regrettable that time and the patient's condition did not permit a more extensive ante-mortem study to be made. The distribution of acidophile predominance in certain lateral areas of the anterior lobe was also of interest, as were the peculiar large cells with rarefied protoplasm in the anterior regions of the anterior lobe. It was difficult to avoid the impression that these were chromophile cells which for some unexplained reason had lost their granules. It is noteworthy that in some of the lower animals the anterior lobe can be subdivided grossly into similar areas. The occurrence of 83.7% acidophiles in areas representing more than half of a transverse section of a grossly enlarged anterior lobe seems quite sufficient to warrant the diagnosis of acidophile hyperplasia. There is also a reasonable chance that the large chromophobe cells, too, had recently been actively functioning acidophiles. In painstaking differential counts of the hypophysis of the woodchuck, *Rasmussen*⁸ found that the acidophiles normally were slightly less numerous than the chromophobe cells, although roughly ten times as numerous as the basophiles. I have not been able to find comparative figures for man, but certainly the proportion of acidophiles is normally much less than in this case. In this connection *Lewis*⁹ case of acromegaly with a pituitary of normal size but with a great increase of the proportion of acidophiles should also be borne in mind.

CASE 3 (C. V.) is a good example of how a pathological lesion may so progress that the original etiological factor is obscured. Assuming the correctness of the theory above given, the pituitary cyst in this case was probably preceded by an adenoma of the anterior lobe with consequent acromegaly. With carcinomatous degeneration and cyst formation, however, all such evidences were destroyed and if the patient had lived long enough doubtless evi-

⁸ Rasmussen, A. T., *Endocrinology*, 1921, V, 32.

⁹ Lewis, D.D., *Johns Hopkins Hosp. Bull.*, 1905, XVI, 157.

dences of hypo-post-pituitarism would have supervened. It is, of course, realized that this interpretation is not capable of proof and that the similarity of the lesions in this and in case 5 might well be emphasized by opponents of this theory.

CASES 4 (W. B.) and 5 (P. J.) are offered by way of contrast as examples of pituitary tumors that do not cause acromegaly. Case 4,



FIG. 17.—Hemorrhage into and fibrosis of both lobe of pituitary with hardly any normal tissue remaining. No symptoms were observed and the condition was discovered by accident at autopsy. *A.* Remnant of acinous tissue of anterior lobe. *B.* Pars intermedia and colloid. *C.* Fibrosed and fatty posterior lobes. *D.* Hemorrhages in both lobes.

a chromophobe adenoma of the anterior lobe, compressing but not destroying the anterior and posterior lobes, is especially useful in bringing out this distinction, as no signs of disordered pituitary function of any kind were to be found or suspected, at least by the methods then in vogue. In Case 5, a large pituitary cyst, signs of hypo-post-pituitarism and of intra-cranial pressure predominated

from the start. With destruction of the anterior lobe one might look also for signs of hypo-pre-pituitarism as well, but here, as in the case illustrated by Fig. 17, such signs were as far as could be told absent for reasons that as yet remain unexplained. The onset of the disorder in adult life would prevent the development of skeletal infantilism, just as pure giantism is found only if hyper-pre-pituitarism occurs before normal skeletal development is finished.

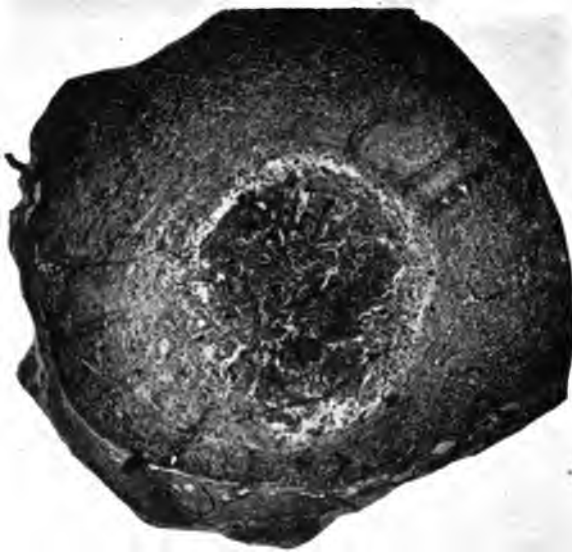


FIG. 14.—Papillary cyst adenoma of pituitary, arising probably from hypophyseal duct. No symptoms. Discovered accidentally at autopsy.

Conclusions: 1. The theory that acromegaly is due to (or at least follows) hyperfunction of the anterior lobe, after ossification of the epiphyses, as expressed by an increase in acidophile cells, is supported by the cases of this series as well as by the majority of those in the literature.

2. The acidophile increase may be expressed either as a hyperplasia of the normal lobe (Case 2) or as an adenoma (Case 1).

3. After the development of acromegaly the pituitary lesion may undergo cystic degeneration (Case 3), so that lesions of this nature do not necessarily contradict the above theory.

4. Pituitary tumors may exist for many months even to the extent of destroying both lobes without giving obvious signs of so-called pituitary disease. It is probable, however, that in most, or all, of these cases careful functional tests would reveal a latent disorder.

5. A more precise terminology than that now in use is recommended for the better discussion and elucidation of disturbances in pituitary function.

I wish to thank the several clinicians and pathologists mentioned for their courtesy in allowing this use of their materials.

THE DIAGNOSIS AND PROGNOSIS OF NEPHRITIS.*

By EDWARD C. REIFENSTEIN, M.D., Syracuse, N. Y.

When one attempts to define nephritis he is confronted with the same difficulties which other clinicians have encountered in trying to give a definition of this condition which will be satisfactory both from a clinical and a pathological viewpoint. Christian¹ attempts to define nephritis by calling it a diffuse, progressive, degenerative or proliferative lesion involving the renal parenchyma, the interstitial tissue, or both.

You all, no doubt, remember the classification of nephritis together with the various urinary characteristics which you learned in the class room or text book, and your disappointment later, when in active practice, because you could not group your nephritis cases according to these formulæ, because the majority were of a mixed type. Or again when you expected from the clinical course and the urinary findings to be able to put a case in one group, you found the pathological report showed the case to be of an entirely different type.

As time went on new classifications according to an anatomic basis have attempted to correlate the end-product with some of the observed clinical phenomena. This method has not been of any material advance as far as simplifying the clinician's working basis is concerned. Volhard and Fahr² have recently made matters less complex by dividing nephritics into two groups according to whether their tubules or glomeruli are affected. This has been of some value because it demonstrated that in most cases where the tubules are involved edema is present. But this classification is far from satisfactory because very few cases of nephritis which come to autopsy have the lesion confined solely either to the tubules or the glomeruli.

At present the physiology of the kidney is not entirely clear, different excellent hypotheses being put forward by equally eminent

* Read at Jefferson County Medical Society, November 11, 1921.

¹ Christian, H. A. General considerations of nephritis. Oxford Medicine vol. III, Chap. X, p. 587.

² Volhard, F. and Fahr, Th. Die Brightsche Nierenkrankheit. J. Springer, Berlin, 1914.

authorities, and until we do know more about its physiological functions we are somewhat uncertain how to approach the pathological physiology.

However, certain observations as to renal function have been made, which are of extreme importance. The disturbed water-elimination and salt-retention of certain types and the increase of nitrogenous substances in the blood in others is of value, but here again the value of this second observation is weakened because a similar finding has been made in other diseases. The combination of salt-retention and impaired water-elimination is associated with edema and has a practical importance as an aid in classifying cases in which edema is present and those without it. This, however, is not without certain limitations as there are cases where edema results from a cardiac involvement. The difficulty in all these cases is the frequent association of cardiovascular manifestations, and if one does not constantly keep this possibility in mind erroneous observations, deductions and conclusions are bound to arise.

A satisfactory classification for clinical purposes is the one offered by Christian:³

1. Acute nephritis
2. Subacute nephritis or intermediate group
2. Chronic nephritis
 - (a) with edema
 - (b) with hypertension
3. Essential hypertension progressing to chronic nephritis
4. Renal arterio-sclerosis progressing to chronic nephritis.

I have found the classification of help with the term "with nitrogenous retention" added in that class of cases of hypertensions where nitrogenous substances are found to be constantly increased, in spite of a strict diet and in the absence of any cardiac involvement or other conditions causing nitrogen retention.

In the diagnosis of acute nephritis a careful history is important. The existence of a previous infection, such as a tonsillitis or sinusitis, the occurrence of scarlet fever or some streptococci infection, adds to the chain of evidence necessary to recognize the possible symptom-

³ Christian. H. A. Clinical classification of chronic nephritis. Cleveland, M. J., XVI, 223; April 1917.

complex as one of acute nephritis. The history of ingestion of certain toxic substances or the presence of pregnancy is important. Edema is supposed to be one of the prominent signs of acute nephritis and in many cases it is present in the classic form of puffiness of the face and extremities. Experience, however, has taught that one can have a severe grade of nephritis with very little visible evidence of edema, and again the fluid may be confined to the pleural or peritoneal cavities. I recently saw a case where there was practically no evidence of edema of the extremities yet extensive fluid accumulation was present in the peritoneal cavity, and there was even some fluid in the right pleural cavity. In this case there was a history of a previous scarlet fever of four weeks' duration; the abdomen was very tense, associated with pain and vomiting; and nitrogenous substances were markedly increased, especially urea nitrogen and creatinine.

A severe edema may be present with very few signs in the urine, and unfortunately the diagnosis cannot be made from the urine alone as is the case in circulatory conditions, so that too much reliance should not be placed upon the test tube and the microscope. The presence of albumin is not enough to establish a diagnosis, even if it be associated with hyaline casts. One should not forget the possibility of the findings being due to a febrile or toxic condition, or that albumin in the adolescent period may be only a manifestation of the condition called *orthostatic albuminuria*, associated with faulty posture, lordosis and pressure upon the left renal vein. Blood-casts are most commonly seen in acute nephritis. The estimation of the nitrogenous substances in the blood is of value, the first of these substances to be retained being uric acid, and another, unaffected by diet and other conditions is creatinine, which if it rises above five mg. offers an unfavorable prognosis. There are cases of nephritis which recover completely, others which seem to have recovered and later present evidence of chronic nephritis, and still others which never improve and gradually go into a chronic state.

When it is possible to locate a definite focus of infection it should of course, be removed. I once saw Eppinger remove tonsils for the relief of edema in a case of acute nephritis following a severe tonsillitis and the operation was followed by marked improve-

ment and immediate relief of kidney symptoms. Uremia may occur and recovery still take place, although the presence of symptoms suggestive of uremia accompanied by a progressive anemia greatly increases the gravity of the prognosis. Measuring the amount of albumin does not help us. Often in the most serious types the quantity of albumin is not large, and the results of various kidney-function-tests even if indicative of severe disturbances are not absolutely reliable because the values may change as the patient improves.

It is the chronic type of the disease which offers the greatest problem, because it is so insidious in its onset. How are we to reach these patients of both chronic groups before they have symptoms severe enough to move them to consult a physician? There is perhaps one way to solve this problem; it is through the general practitioner. He can impress upon the families the necessity for periodic physical examination, and record the findings of such examinations including blood-pressure-estimation and certain tests of kidney function which can be done without any elaborate equipment. It should be his duty to study carefully the function of the kidneys during and following an acute infection, and not to depend upon a single observation for final evidence of the renal condition. He should not be satisfied by testing for albumin alone. If we are to receive any aid in determining the relationship of acute infections to renal disturbance the one who has seen the initial infection must follow the condition of his patient according to established principle and if possible detect early changes in the function of the kidneys.

In the diagnosis of chronic nephritis with edema it is important to recognize certain phases of the situation with reference to the localization of the edema. While the face and extremities are the usual areas affected they may show very little involvement and the edema be confined to certain viscera, such as the lung, the brain, the gastro-intestinal tract, or the peritoneal, pleural or pericardial cavities, thereby producing characteristic symptoms. There may be edema of the fundus of the eye, of the glottis, of the genitalia—often of serious proportions—or upon the back. Posture has an influence on edema. A careful history is necessary in these cases, and one will elicit information concerning gastro-intestinal dis-

turbances, loss of appetite, weakness, exhaustion, nervousness and evidence of anemia. The history may point to a possible cardiac origin of the edema, and in some instances an opinion as to whether the kidneys or the heart is responsible must be based upon the patient's physical response to therapy. In heart conditions digitalis and theobromin, by improving the circulation, cause a disappearance of the edema. Urine examination may give similar findings in both conditions, and is not an aid in differentiating the cause of the edema. Functional kidney tests may show diminished function in both kidney and heart conditions and improve when the heart condition is ameliorated. The sodium chloride retention and the failure of response to fluid-intake are characteristics of this type of nephritis. A patch of exudate in the fundus of the eye is also a valuable aid.

The prognosis of this type of nephritis is grave, and death may occur suddenly from an edema of the glottis, which happens in this type more frequently than in any other form. Alarming symptoms may arise from edema of the internal viscera. The general appearance of the patient, the progress of the symptoms, and the occurrence of complications all influence the prognosis.

The possibility that prostate obstruction may produce signs and symptoms of chronic nephritis should always be considered. In the class of cases where prostate obstruction does produce a condition similar to nephritis, very little evidence of the true condition of the prostate can be gained by palpation because it is the middle lobe which is at fault and the enlargement and obstruction cannot satisfactorily be made out by palpation.

Edema may be present even if it can not be demonstrated. Albumin and casts may be found and various tests of kidney function show lowered function and the blood show evidence of retention.

This should also be considered in the other groups of nephritis, those with hypertension, with retention, especially where there is a history of nocturia and frequency, and such cases be considered primarily nephritis. The importance of cystoscopic examination in this type of a case is evident. In the diagnosis of chronic nephritis with hypertension we may get a history of recurrent attacks of headaches, or gastro-intestinal upsets, including those where severe pains in the abdomen may be of such a nature as to give the impression

that an acute surgical condition may be present. Extreme caution should be used in recommending operations upon patients presenting hypertensive cases lest death result from the increased strain upon the kidneys, and every effort should be made to estimate the function of the kidneys and the condition of the blood before operation. It is more important to consider the kidneys than the heart. Various nervous symptoms, sometimes similar to *neuresthenia* are complained of by these patients. *Dyspnoea* especially at night is a very distressing symptom, and transient palsies or numbness of the extremities with pain in the legs of a cramp-like character occur. Some of these patients have a peculiar fish-like odor to their breaths.

It is in this class of patients that functional tests of the kidneys and chemical blood examinations are of importance and aid in separating the class of arterial sclerosis with hypertension from the group of nephritics with hypertension. I consider the two-hour-fixation test of greatest value. Normally the kidney has the power to concentrate urine with an increase in the specific gravity; when the urine is collected every two hours there is a difference of from seven to nine points and the night urine is less in amount than the day. One of the earliest signs of impaired function is the loss of this power, and any practitioner can do this test by collecting the urine from seven a. m. to nine p. m. every two hours, when it will be demonstrated that the specific gravity is lower than the normal and that the specimens approach each other. The night urine will be found to be greater in quantity than the total passed during the day and of lower specific gravity. The amount at night depends upon the diet and the liquid taken after six p. m.; over 400 cc. at night is to be considered pathological.

It has been my practice to instruct patients to drink one quart of fluid during the day and nothing after six p. m., then to collect the urine in twelve-hour periods from eight to eight, keeping the day and night specimens separate. This is done for three consecutive days and information is thus obtained as to the specific gravity, the total output, and whether the night urine exceeds that excreted during the day. If the specific gravity is low and the night urine exceeds that of the day, the patient is then given the necessary bottles marked so that he can do the two-hour test. In this type of nephritis chemical blood examination may show disturbances of the nitrog-

enous substances with increased retention. The uric acid is the first element retained, followed by the urea nitrogen and the creatinine. In the presence of an acidosis the carbon-dioxide-combining-power is reduced. One should never rely upon a single observation of the amount of these substances and should be certain as to the diet, the condition of the heart, or other influences which might affect the relative quantities. The estimation of creatinine is of value in prognosis because creatinine is an endogenous substance and uninfluenced by diet. High readings of creatinine offer an unfavorable prognosis. Single low phthalein estimations are not to be considered positive evidence, but if they remain constantly low and are associated with other progressive symptoms, the indication is of value.

Many times I have had patients with hypertension referred to me in whom the oculist had observed a patch of exudate and had made a diagnosis of nephritis. I consider the examination of the fundi a most valuable aid in diagnosis and prognosis, the onset of albuminuria retinitis being a serious omen.

No tests of the urine or of the blood or any laboratory procedure are as valuable as careful observation and knowledge of the patient's condition, combined with an appreciation of the gravity and significance of progressive symptoms. Especially in progressive visual disturbance, increased irritability, derangement of mentality, difficulty of respiration—such as dyspnoea and faulty rhythm,—repeated gastro-intestinal upsets, persistent headaches, or somnolence, the alert physician will recognize the danger signs of uremia and the possibilities of death.

In conclusion I would suggest that, (1) during acute infections the function of the kidneys be carefully observed, together with repeated urine examinations following the infection.

(2). That patients be urged to present themselves for periodic physical examination, blood pressure estimation, and kidney-function tests, with the hope that early nephritis may be found.

(3). That close attention be given to the onset and sequence of symptoms in chronic nephritis, and careful observations and recording of data partially take the place of medication.

(4). That while functional kidney tests should be repeatedly performed in chronic nephritis, no final deductions as to the condi-

tion of the patient should be made from the laboratory findings alone.

(5). That the chemical blood examinations offer a valuable aid in the diagnosis and prognosis of nephritis when considered—as all laboratory evidence should be—in conjunction with the clinical findings.

(6). That surgeons should use all methods of examinations when a hypertensive case is being considered for operation, paying especial attention to kidney function.

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ABSTRACTS, REVIEWS, SUMMARIES AND CONCLUSIONS FROM THE CURRENT LITERATURE

Anaphylaxis and the Endocrines. Henry R. Harrower, N. Y. M. Jour., March 15, 1922.

Protein metabolism is related to the internal secretions; hence, disturbances in the routine of protein metabolism may be connected with a disturbed endocrine function.

Anaphylaxis, or protein sensitization, may involve the endocrine glands, and a part of the reaction connected with these idiosyncrasies may involve the ductless glands.

Hypoadrenia of anaphylactic origin needs to be treated like adrenal insufficiency of any other toxic origin.

Occasionally, protein sensitization may be overcome by the establishment of an immunity, as is routinely done in the treatment of hydrophobia or the administration of bacterial vaccines. In vomiting of pregnancy, placenta substance administered over a period seems to favor an immunity to the placental proteins and a control of toxic irritability.

Occasionally, organotherapeutic measures bring about an anaphylactic reaction, particularly in patients already sensitive to other food proteins.

Whenever a clinical hint attracts attention to protein sensitization, the endocrines should be studied and brought into the matter both from the viewpoint of diagnosis as well as treatment.

On the Function of the Latissimus Dorsi Muscle and a Sign of Functional Dissociation in Simulated and "Functional" Paralysis of the Arm. G. H. Monrad-Krohn, Acta Med. Scand., February 16, 1922.

The clinical tests of the muscle consist in:

1. Letting the patient make an effort to depress the horizontally extended arm in the frontal plane against resistance, and
2. Making the patient cough. In both tests the contraction of the lateral border of the muscle can be seen and felt.

In test nr. 2 one generally observes the anterior (or lateral) fibres to contract slightly more strongly than in test nr. 1; in one

individual the contraction is slightly stronger tested by the one method, in another the contraction is slightly stronger tested by the other method; but in most normal persons the contraction is of about the same strength no matter what method of investigation is employed.

In motor disturbances one obtains the following functional response to the above tests of the latissimus dorsi:

I. In paralysis due to lesion of central motor neurons (hemiplegia, monoplegia cereбрalis) there is generally (after the shock and the initial flaccid stage has passed off at least) a distribution of the functional loss which avoids the proximal parts of the arm; latissimus dorsi is practically never paralytic (possibly a little paretic); its function, as that of all the adductors of the arm, is as a rule comparatively good, and it is often the seat of a contraction.

II. In flaccid paralysis due to lesion of the peripheral motor neurons (poliomyelitis, hematomyelia in the lateral cell columns of the anterior horn in cervical region, total plexus paralysis, neuritis, progres. spinal myatrophy, myopathy) one finds complete loss of response to both tests when the paralysis has involved the latissimus dorsi. In flaccid *paresis*, involving the muscle, the response obtained by both tests is equally diminished.

III. In "functional" paralysis of the arm (posttraumatic neurotic, hysterical, paralysis due to hypnotic suggestion) and simulated paralysis of the arm the response to test nr. 1 is lost or minimal, whilst the response to test nr. 2 is unimpaired;—*there is in other words a functional dissociation.*

It will be seen that this functional dissociation is found only in group III. This sign is of practical importance chiefly in the diagnostic distinction of groups II and III. Here it is often of great value as a confirmatory sign, sometimes it may be the deciding factor—viz., in those cases where distinct reflex changes are not found and where there is no accompanying sensory loss of characteristic distribution or quality,—or where for any reason the electrical examination is not conclusive (R. D. may not yet have had time to develop, sufficient neurons may be left to prevent the R. D. from developing in peripheral paresis or the electrical examination cannot be carried out for practical reasons).

This sign of functional dissociation in the action of the latissimus dorsi muscle is according to the author's experience conclusive evidence of the paralysis being "functional" or due to simulation.

Uteroplacental Apoplexy (Hæmorrhagic Infarction of the Uterus) in Accidental Hæmorrhage. Prentiss Willson, Surg., Gynec. and Obst., January, 1922.

Uteroplacental apoplexy is caused by the inundation of the uterine wall with a toxin of the nature of a hæmorrhagin, liberated from the placenta, and, naturally, producing its maximum effect at the site of its absorption and greatest concentration.

Accidental hæmorrhage is probably, in the great majority of cases, a manifestation of the same process.

Clinically, the significant fact in the pathology is the damaged state of the uterine wall, which tends to cause both intra-abdominal and postpartum hæmorrhage.

Secondary Anemia of Infants. Frank A. Evans and William M. Happ, Johns Hopkins Hosp. Bull., January, 1922.

In infants with anemia, enlargement of the spleen is frequent, and enlargement of the liver and lymph nodes is fairly common. These findings alone are of no specific diagnostic or prognostic importance.

The infantile hematopoietic system frequently reacts to anemia with a relative lymphocytosis, by throwing out immature blood cells, or with both of these qualitative changes in varying grades of severity. Any of these reactions may be present with or without a leucocytosis, and may have no serious significance.

The presence, absence, or degree of splenomegaly, hepatomegaly, or general enlargement of the lymph nodes, the severity of the anemia, the total white blood cell count, or the type of qualitative changes in the blood, bear no constant relation to each other.

This symptom complex has not been shown to be a disease *sui generis* and all variations of it are probably merely an infantile response to some agent producing secondary anemia. It is not yet entitled to any special name, especially one that suggests a relationship to leukemia.

Chronic Arthritis. Leonard W. Ely, Med. Record., February 11, 1922.

The patient is usually middle-aged or elderly, and presents evidence of alveolar infection about the roots of his teeth. Films of his jaws show small abscess cavities. The muscular atrophy, increase of local temperature, muscular spasm, deformity, and swelling of the soft parts, common in an arthritis of the first type, are usually absent. The joint may possess a considerable range of painless motion, and usually creaks and grates. With a little practice one can differentiate the two types fairly well by a physical examination, but the diagnosis can be made absolute by the Roentgen rays. The film will show the new bone at the lines of insertion of the capsule—the so-called lipping and spurring, even when evidences of bone absorption are marked in the heads of the bones. There may be some cause for confusion in the finger joints, for here bone absorption dominates the picture, but in an arthritis of the second type the terminal interphalangeal joints are the ones to be involved, rather than the proximal interphalangeal and the metacarpophalangeal joints. The terminal phalanges are in semiflexion and lateral deviation.

Sarcoma of the Long Bones. Henry W. Meyerding, Surg., Gynec. and Obst., March, 1922.

The value of microscopic proof of malignancy of tumors of the long bones is obvious, inasmuch as the fate of an extremity may depend on such proof. If any doubt exists with regard to the character of the tumor, sections from various portions should be examined.

A diagnosis should be made only after thorough clinical, physical, and roentgenographic examinations have been made, and even then can not always be determined until an exploratory operation and microscopic examination rules out giant-cell tumor, chondroma, fibrocystic or cystic disease, syphilis, and osteomyelitis. The principal points to be decided before operating are malignancy, metastasis, and the extent of bone involved. With early diagnosis, with eradication of the tumor, with care to exclude patients with metastasis, and with the use of radium, roentgen-ray, and Coley's

toxin, prolongation of life may be looked for following operation.

Malignant Disease of Bones. Herman E. Pearse, Jour. Missouri State Med. Assn., February, 1922.

Conclusions.—Any case of continued pain should be studied in a hospital laboratory.

Rheumatism is only a diagnosis when rationally studied and proven. Pain is not rheumatism.

Cancer of the bone is a frequent cause and malignant myeloma an occasional cause of so-called rheumatic pain long continued.

X-ray is our only means of recognizing these growths and the chemical laboratory our best means of differentiating them.

All long-continued pain should be X-rayed.

The Gross Pathology of Brachial Plexus Injuries. Alfred W. Adson, Surg., Gynec., and Obst., March, 1922.

Injuries of the brachial plexus, except those described under Group I, are situated in the vicinity of the intervertebral canal proximal to the brachial trunk.

The injuries may be slight, lacerating only the fascia around the cervical roots, or they may be severe and result in laceration of the cervical roots between the cervical ganglion and the cervical trunk, with or without avulsions of the ganglion.

Inasmuch as injuries of the brachial plexus are produced in the root or the ganglion, they seem primarily to be lesions of the nerve rather than secondary to lesions of the shoulder joint.

Patients with milder injuries may be expected partially or completely to recover without surgical treatment, but those with more severe injuries rarely recover, even with surgical treatment.

Carcinoma of Prostate. B. S. Barringer, Surg., Gynec. and Obst., February, 1922.

In but 2 per cent of cases of carcinoma of the prostate seen at the Memorial Hospital is the carcinoma apparently confined to the prostate.

Routine prostatic examination of all patients beyond the age of

50, irrespective of symptoms, is the only rational method whereby we may hope to make a diagnosis of prostatic carcinoma early in the disease.

The results of radium treatment of carcinoma of the prostate are superior to operative removal both in causing regression of the disease and in coping with urinary retention.

Prognosis in Infancy and Childhood. Joseph H. Marcus, Med. Record, February 18, 1922.

In giving a prognosis in early life, the physician must bear in mind two things; one is the liability in infancy to sudden and unexpected death from various unsuspected causes, the other factor to keep in mind is the susceptibility of infants and children to develop complications. The occurrence of sudden death is not an uncommon incident, and in those who are apparently healthy. At times they are found dead in bed, and this usually happens with those who are delicate or suffering from malnutrition. The most frequent causes for sudden death in infants are as follows: Malformations, internal hemorrhage, asphyxia, thymic enlargement, atelectasis, marasmus, convulsions, and unknown causes ushered in with a very high temperature.

The Convulsive Disorders of Childhood. John Lovett Morse, Jour. A. M. A., January 21, 1922.

PROGNOSIS OF CONVULSIONS

Death rarely occurs in or as the result of a single convulsion. This is especially true of the convulsions of spasmophilia. The younger and more feeble the individual, however, the greater is the danger. A single convulsion is most dangerous when it occurs in whooping cough or in the course of diseases of the larynx or lungs. Moreover, the cerebral congestion may be so great in any convulsion that it may result in a hemorrhage, which will later cause feeble-mindedness, epilepsy or spastic paralysis. Death is unusual even when there is a series of convulsions in rapid succession and lasting many hours. It may, however, occur as the result of exhaustion, even in strong babies or children. Repeated convulsions, reflex in

origin, may apparently in time develop a "bad habit of the brain," and lead to epilepsy. The prognosis for recovery in epilepsy in childhood is better than in later life; as to mental impairment, worse.

A Case of Chorea and Erythremia. Lewis J. Pollock, Jour. A. M. A., March 11, 1922.

COMMENT

It is notable in the case of Bordachzi that the choreiform movements disappeared, although the erythremia persisted. It is indicative of the supposition that the choreiform movements are not produced by any change in the blood but rather by a definite pathologic condition in the brain, such as hemorrhage or thrombosis. The same observation is true in the case here reported. Although there was a diminution in the number of red cells, the amelioration of the hyperkinesia was entirely out of proportion to the change in the blood, spleen or cyanosis. The indications were against a direct relation of the changes in blood content to the chorea.

The Premature Contraction and Its Significance. J. Strickland-Goodall, N. Y. Med. Jour., February 15, 1922.

Extrasystoles indicate hyperirritability of the myocardium.

Hyperirritability of the myocardium is produced by either extrinsic or intrinsic causes—the latter being by far the most important.

Hyperirritability represents a definite stage in the physiological process of fatigue and the pathological conditions of inflammation, degeneration, and toxemia, hence extra systoles are indications or manifestations of such conditions.

Extrasystoles are important according to: a. The nature of the underlying condition. b. The amount of intravascular strain and amount of circulatory disorganization they produce.

Auricular extrasystoles are practically always intrinsic in origin and usually indicate definite damage to the auricular myocardium. They often precede flutter and fibrillation and give rise to paroxysmal tachycardia.

Right ventricular extrasystoles are often extrinsic in origin and due to pressure, but they may be intrinsic, when they usually indicate right heart strain or exhaustion.

Left ventricular extrasystoles often indicate left ventricular fatigue and precede failure, especially in aortics.

Extrasystoles of any type in complete heart block seriously disorganize and embarrass the circulation and must always be regarded as serious.

Dermatomyositis, with Report of Two Cases. Walter R. Steiner, Jour. A. M. A., January 28, 1922.

Dermatomyositis has previously been somewhat overlooked, but is a disease readily recognized if the definite symptoms of edema, dermatitis and a multiple muscle inflammation are properly considered.

Blood in the Digestive Tract. L. Winfield Kohn, N. Y. Med. Jour., March 1, 1922.

Bleeding anywhere in the body implies a breach in the continuity of tissue, and since many gastrointestinal affections are characterized by a breach in tissue, it should be our duty to look for blood in the alimentary tract.

A great deal of practice in the use of the smaller tubes will reduce the probability of trauma to a minimum and a wider experience with the blood test will enable the worker to place a proper estimation upon it.

Bleeding from the respiratory tract, teeth, gums, etc., or from hemorrhoids, rectal growths or anal fissures, may as a rule be accounted for, and such bleeding can often be ruled out.

Those conditions which do not give evidence of the presence of blood in either the gastric contents, duodenal contents, or stool are generally functional in origin or nature; the absence of blood in the stool alone does not exclude the possibility of small hemorrhage above as in the stomach and duodenum.

Very small amounts of blood may accumulate in the fasting stomach as a result of a breach in the gastric lining, yet will not accumulate in the short hour following the administration of a test breakfast, hence no positive blood reaction will be obtained in the test breakfast contents.

When bleeding can be ascribed to certain portions of the tract,

the fact of the existence of organic disease is established, and such a breach in continuity may indicate ulcer, erosions, papillomatous growths, chronic inflammation, passive congestion, or malignancy in the mucosa, corresponding either to the area of the stomach or bowel from which it has been obtained, or to a point in adjacent organs connected with the bowel tract, such as the liver, pancreas, gall ducts or gallbladder.

To know that bleeding exists is in itself a most worthy accomplishment and to ascertain the direct cause of the bleeding should require study from every other angle and through every possible means at our command.

Methods of Precision in the Diagnosis of Diabetes. Henry J. John, Jour. A. M. A., January 14, 1922.

The diagnosis of diabetes in a number of cases cannot be established without blood sugar determination.

A simple time-saving and accurate method is described whereby blood sugar determinations are made readily available.

The Place of the Modern Medical Laboratory in the Diagnosis of Disease. Lucien Achard, Med. Record, March 11, 1922.

It seems that the modern medical laboratory has a primary value in the diagnosis of the diseases, and that this fact should be more plainly acknowledged and accepted. If, then, we look at the laboratory in a comprehensive way as a diagnostic, therapeutic, and preventive agency, we see that in medicine today it should hold the first place, and it is going to hold such in the future.

Medical science can not be a mathematical science, as we always have to do with some variable and unknown quantities, but it is self-evident that the laboratory, in trying (and in many instances has already succeeded) to establish unquestionable facts and fixed rules on these, is making, in every possible way, an exact science of it, independent from our clinical opinions or impressions. To use a mathematical comparison, I like to imagine the practice of medicine as a triangle whose base is made by the pathological science, from one end of which arises clinical skill, from the other therapeutic ability, which join together at the apex, where we find meeting the proper diagnosis and the correct therapy.

Epidemic (Lethargic) Encephalitis. George E. Price, Jour. A. M. A., March 11, 1922.

COMMENT

The question could be raised as to whether this child did not have a reinfection. While admitting this as a possibility, the known tendency of epidemic encephalitis to relapse, and the absence of any data regarding reinfection in the disease, point toward a flaring up of encapsulated infectious foci, rather than a reinfection from an outside source.

It is interesting to compare encephalitis, from the standpoint of relapse and reinfection, with poliomyelitis, the disease with which it has so much in common. Taylor, in 1916, reported a case in which there were two attacks of poliomyelitis three years apart, and reviewed the literature on the subject. His conclusion was that, while an attack of poliomyelitis in the great majority of cases confers a lasting immunity, it is definitely established that exacerbations or relapses may occur at short intervals of time after the primary onset and, finally, that the evidence is accumulating to show that an actual second attack with reinfection from an external source may, and probably does occur in rare instances. What Taylor wrote of poliomyelitis may be true of encephalitis.

The possibility of a relapse in epidemic encephalitis after an interval of a year or longer is of interest to life insurance statisticians, who already are somewhat chary of renewing health policies to persons who have had encephalitis.

Epileptiform Manifestations in Endocrinous Disorders. Sylvester R. Leahy, N. Y. State Jour. Med., January, 1922.

CONCLUSIONS

There appeared to be a definite relation between deficient ovarian secretion and epileptiform attacks.

There appeared to be a definite relation between dyspituitarism attended by deficient secretion and epileptiform attacks.

Practically all of the cases showed more than one glandular involvement.

Striking physical abnormality was absent, except in one case.

The failure of the attack to disappear entirely in some cases

may be due to the effect that glandular involvements other than those established were overlooked, and therefore not medicated, or establishment of the epileptic habit rendered this form of discharge of energy more difficult to control after being present for some time.

Transitional forms of various endocrinous disturbances should be sought for in every case of epilepsy.

The Importance of Ophthalmoscopic Examination in Children.

Jos. P. Costello, Jour. Missouri State Med. Assoc., March, 1922.

Ophthalmoscopic examination, owing to its importance, should become a part of a routine examination.

It is important as an aid in making a differential diagnosis between encephalitis lethargica and tuberculous meningitis.

There is a form of chorioido-retinitis in infancy with an unknown etiology.

It is of additional evidence in the diagnosis of lues, tuberculosis, meningitis, brain abscess, tumors, and blood diseases.

It is oftentimes diagnostic in itself, *e.g.*, in miliary tuberculosis or in amaurotic family idiocy.

The Cardiac Index of Goitre. A. E. Renner, N. Y. Med. Jour., February 15, 1922.

Prognosis can be tempered by the following, in proportion to the extent of the findings:

1. If arrhythmia persists (mild involvement).
2. If palpitation persists (moderate degree of thyroxic myocarditis).
3. If murmur persists (dilatation marked).
4. If palpitation plus precordial pain, thrill and perhaps some slight edema is found, the prognosis must be a serious one. On the other hand rhythmic hearts may also be seriously impaired, but with careful study operative risk can be more or less accurately adjudged. The test of functional efficiency that has given the best guidance in this type of case is the Katzenstein test. Pulse and blood pressure are carefully recorded before the patient's femoral arteries are both compressed below Poupart's ligament, the compression is held till both pulses are lost. Again the pulse and blood pressure are carefully recorded.

1. If blood pressure increases and the pulse slows down, the patient's condition as to the heart is excellent. 2. If there is no change in blood pressure or pulse, there is a slight impairment in myocardial balance. 3. If blood pressure remains unchanged but the pulse increases moderately, then risk is greater. 4. If blood pressure falls and pulse increases then the patient is a most hazardous risk and should be operated on only in vital necessity, and then under a local anesthetic, with proper supporting stimulation.

Studies of the Function of the Gall Bladder. W. B. Harer, E. H. Hargis, and V. C. Van Meter, Surg., Gynec. and Obst., March, 1922.

The function of the gall bladder is that of a concentrator of bile, which concentration is effected chiefly by the lymphatics.

The gall bladder is emptied of its contents,—if it is emptied at all through the cystic duct,—by pressure of adjacent, distended and congested, organs during digestion, and by the milking action of the duodenal peristaltic waves, and the rhythmic contractions of the gall bladder are of no importance in this respect.

By means of the lymphatics infections are carried from the gall bladder to the glands at the head of the pancreas, producing a lymphangitis and lymphadenitis and a lymph stasis which later becomes organized and results in chronic pancreatitis.

Individual Variation as Influencing Rehfuss Fractional Method of Gastric Analysis. Nicholas Kopeloff, Jour. A. M. A., February 11, 1922.

In a critical study of the Rehfuss fractional method of gastric analysis, the following results were obtained in normal and psychotic individuals:

Repeated analyses on the same individual within a short period of time—while the physical and mental condition remain practically unchanged, yield different curves.

These curves from the same individual vary as much from one another as the differences between the curves of different individuals.

Variation in the highest point on curves from the same individual

often exceeds differences between the highest points of different individuals.

Variation in the total amount of fasting contents from the same individual is often greater than between different individuals.

There is an imperfect correlation between the measurement of gastric acidity by the titration method and hydrogen ion concentration determinations. The latter yields more important information regarding true acidity. This agrees with the work of Shohl.

Similar results were obtained when repeated analyses were made on healthy normal individuals showing no gastric symptoms.

In only half of the instances was there any correlation between high gastric acidity and low bacterial count. This indicates that another unknown factor is in operation.

It is suggested that the bacterial content of the stomach depends on the swallowing of saliva. Bacterial counts, reaction of saliva and observation of amounts swallowed substantiate this, as well as removal of saliva during the analysis.

There is little difference in the gastric acidity of patients diagnosed as having dementia præcox and manic-depressive insanity.

Subject to the limitations of the investigation, it is indicated that single determinations of gastric acidity by the Rehfuß method are not sufficient on which to base conclusions, because they do not take into consideration individual variation.

Congenital Occlusions of the Intestines. Delmer L. Davis, and C. W. M. Poynter, Surg., Gynec. and Obst., January, 1922.

Congenital occlusion may occur at any point in the intestinal canal. In 15 per cent of this series it is multiple.

The condition is relatively rare, it occurs once in about 20,000 infants.

There is no one cause for all of the cases. The various etiological factors may be summarized under the following heads: developmental anomalies; developmental accidents, foetal diseases.

Prognosis is bad.

Death of the Heart in Diphtheria. S. Calvin Smith, N. Y. Med. Jour., January 18, 1922.

A case of diphtheria is reported clinically and electrocardiographi-

cally, in which antitoxin treatment had been neglected for seven days, the patient being sent to the hospital an hour before death.

The sustaining effect of diphtheria antitoxin, even on a heart overwhelmed by toxins, is graphically recorded.

The heart, within twenty-six minutes, exhibited the following varieties of disordered mechanism: tachycardia; ventricular flutter; ventricular fibrillation; complete atrioventricular heart block.

Ventricular fibrillation and heart block occurred after clinical death had been pronounced by four competent observers.

As the heart approached the end of life, the ventricular impulse was silent, auricular activity alone being manifest.

Two widely separated auricular impulses registered the death of the heart.

Essential Hæmaturia. Charles S. Levy, Surg., Gynec. and Obst., January, 1922.

The diagnosis of essential hæmaturia should be made only when all known urological methods have been employed with negative findings. It is a purely clinical diagnosis, indicating renal bleeding of unknown etiology.

This paper comprises the studies of 30 cases diagnosed as essential hæmaturia, based on clinical studies supplemented by conclusions drawn from a questionnaire, the questions of which were so framed as to include the possibility of subsequent development of nephritis, urinary tuberculosis, calculi of urinary tract, renal tumor, operative procedure upon the kidney involved, and recurrences of hæmaturia.

In 36 per cent of the cases the onset of the hæmaturia occurred in the fourth decade of life.

The bleeding in essential hæmaturia is for the most part symptomless.

In most of the cases the hæmaturia developed spontaneously. Exertion does not appear to play a significant rôle in the origin of these hæmaturias.

The right kidney was responsible for the bleeding in 17 cases and the left in 13 cases. In no case were both kidneys involved.

Etiology of Hay-Fever in Arizona and the Southwest. Samuel H. Watson and Charles S. Kibler, Jour. A. M. A., March 11, 1922.

CONCLUSIONS

In distinction to the Rocky Mountain region, the artemesias (wormwoods) have little, if any, importance in producing hay-fever in the Southwest.

Amaranths are an important factor, and their pollen is very active; in fact, it will probably be shown that amaranths here are the principal cause of fall hay-fever, taking the place of the rag-weeds in the East and the artemesias in the Rocky Mountain region. Some seasons *Atriplex wrightii* will probably take the place of *Amaranthus palmeri*. *Franseria tenuifolia* is probably a less important cause of fall hay-fever.

Capriola dactylon (Bermuda grass), causing the spring, summer and fall types, will probably prove to be the common grass causing hay-fever at altitudes up to 4,500 feet, and *Poa pratensis* (June grass) above that altitude.

Gaertneria deltoidea (rabbit bush) and *Atriplex canescens* (shad scale) are probably the most important plants causing the spring type of hay-fever.

Trees are probably not an important factor in causing hay-fever; but when they do cause it, they cause a very early type, and the most important trees are, first, cottonwood and, second, ash.

The principle of group reactions is not applicable to the hay-fever situation in Arizona and the Southwest.

The Diagnosis of Some Eruptions on the Hands and Feet. Charles M. Williams, Arch. Dermat. and Syphilis, February, 1922.

There is a well-defined group of eruptions occurring on the feet, often as a complication of tinea cruris, in which a mycotic organism can usually be demonstrated, and this organism is often the epidermophyton. There is a somewhat similar group of eruptions occurring on the hands, but it is more variable and the demonstration of a parasite is much more difficult. It is quite possible that some of the cases involving the hand that clinically fall into this group are not mycotic at all, but are caused by an external irritant. Most, if not all, of these cases will ultimately be found to be parasitic.

Paroxysmal Tachycardia. Frederick W. Price, N. Y. Med. Jour., February 15, 1922.

DIAGNOSIS

The diagnosis of paroxysmal tachycardia is usually not difficult. The most important points from the diagnostic point of view are: 1. The commencement and termination of the attack of tachycardia. The suddenness and abruptness of the onset and termination of the tachycardia is a characteristic feature—the maximum rate is attained within a few seconds, and the return of the cardiac rate to what it was prior to the attack takes place equally quickly, whereas in tachycardia associated with the normal rhythm the onset and termination are gradual. 2. The cardiac rate. A persistent rate of over 160 is almost invariably due to an abnormal rhythm, and a persistent rate of over 140 may be due to the same cause. 3. The cardiac rate is not influenced by change of posture or other forms of physical exertion, as in the case in tachycardia not associated with an abnormal rhythm. Polygraphic or electrocardiographic examination will put the diagnosis of paroxysmal tachycardia beyond all doubt.

PROGNOSIS

The difficulty of forming a prognosis in any case of paroxysmal tachycardia is great. The prognosis may be considered from two viewpoints: 1, that of a particular paroxysm, and, 2, the question of recurrence of the attacks. With regard to the former it may be noted that death during an attack is comparatively infrequent, although this may occur when the duration of the attack is prolonged. The points which should be taken into account in considering the prognosis in an individual attack are the ventricular rate, the duration of the attack, and the degree of cardiac failure present. When the ventricular rate is not very high, and there is little or no cardiac dilatation, and an absence of edema of the lungs, hepatic enlargement and anasarca, the outlook is good as far as the risk of life is concerned; while, on the other hand, if the clinical picture be the reverse, the outlook is uncertain, although it should be remembered that the paroxysm may cease at any time and there is no means of knowing when this may occur, and the patient improves with extraordinary rapidity.

With regard to the question of the recurrence of the attacks, it is impossible to give an answer. For in some cases the patient may never suffer from a second attack; while, on the other hand, they may recur even several times in the course of twenty-four hours, or at frequent intervals for many years, or, lastly, permanent auricular flutter or fibrillation may supervene even after a few attacks. An attempt should be made to estimate the degree of integrity of the myocardium between the attacks, and the best way to ascertain this is to find out how the heart responds to effort. If the field of cardiac response is not diminished, and the attacks be infrequent and transitory with an absence or only a slight degree of cardiac failure during the paroxysm, the prognosis may be considered good.

The Relationship of Precordial Distress to Extracardiac Conditions. Edward C. Reifenstein, N. Y. Med. Jour., March 1, 1922.

The author suggests in cases of precordial distress: Etiology be carefully studied. Closer attention be paid to dysfunction of various organs, so that we may get ahead of the terminal structural changes if possible. Because a physical finding referable to the heart is usually associated with structural changes; not to conclude that the particular complaint is referable to that structural change. A carefully written history is important especially if one goes over it a second time. A complete physical examination with special emphasis upon inspection is necessary. While instrumental evidence is valuable, an attempt should first be made to determine the condition by other methods. Laboratory evidence should be considered for its negative as well as its positive value.

The Importance of Posture in the Physical Examination of the Heart. W. Gordon, N. Y. Med. Jour., January 18, 1922.

In lung diseases the double stethoscope is indispensable, because it can penetrate further than the wooden one and pick up adventitious sounds which would be missed without it. In heart diseases a double stethoscope helps to determine the presence of mitral systolic murmurs too faint to be sure of with the wooden stethoscope. But (a fact not to be forgotten) a slight aortic regurgitant murmur, distinct to the wooden stethoscope, may actually be inaudible to the double stethoscope. Lastly, there are some very faint aortic regur-

gitant murmurs impossible to be sure of with either stethoscope, which can only be made sure of by an ear laid directly on the chest, or with only some thin fabric intervening.

A Case of Hypothyrosis in an Infant. Alvin E. Siegel, N. Y. Med. Jour., March 15, 1922.

The prognosis of hypothyrosis is good except for the danger of intercurrent infectious disease, especially pneumonia. The response to the administration of thyroid gland is prompt and quite marked. In the more severe grades necessity demands that the administration of thyroid gland be continued over an indefinite period, probably intermittently until adult life had been reached. In these cases, while it is hoped that sufficient secretory activity of the gland will develop to supply the demands of the body during the period of growth and development, it is highly probable that the supply of thyroid secretion may fall below the demands. It therefore becomes a part of the proper management of these cases to be on the alert for evidence of thyroid insufficiency, and it is a better practice to administer this material where it may not be needed rather than to allow a condition of deficiency to arise. The development of mental and osseous changes are to be prevented if at all possible. For the same reason it is better to follow this therapeutic régime in doubtful cases, rather than to allow a case of hypothyrosis to go untreated and unrecognized.

Keratoderma Blenorrhagica. David Lees, Edinb. Med. Jour., March, 1922.

DIAGNOSIS

The lesions are commonest on the feet and are primarily vesicles; they quickly become pustules, and finally the wall of the pustules becomes keratinised. When present on the prepuce and other moist areas keratinisation is not so marked. Balanitis circinata is a common association in male patients. On the scrotum the macerated papules may closely resemble the moist papules of a generalised syphilis. The appearance on the extremities is, when the condition is developed, that of small conical protuberances of a dull pink color. These protuberances soon become a dirty brownish yellow,

are horny to the touch, and have surrounding their base a narrow pink areola seen clearly in the cast of the back. The most apt description of the fully-developed lesion is that of the French authors who liken it to "mountain ranges on a relief map," or that of Sequeira who compares it to "sloes embedded in the skin." In the intervening areas the epidermis is parchment-like and thickened, and a dirty yellow, brown color. At times the single lesions become confluent, and form an irregularly shaped horny mass of keratinised epithelium.

Microscopically, there is a marked leucocytic infiltration of all the layers of the skin, especially of the dermis and epidermis. The condition is always symmetrical, and occurs chiefly on the balls of the great toe, the margins of the sole and the heel. The hands may be affected but less commonly, and only in severe cases the condition may be seen on the trunk and on the extremities. The nails and nail beds may be affected, and after great thickening may slough off in a complete cast. The onset is usually gradual, even in a case accompanying acute infection. There usually is an associated arthritis, while anæmia and muscle wasting are prominent features.

PROGNOSIS

Although the general blood infection is a severe one, the lesions react well to treatment. In some cases, however, there is a tendency to relapse, and recurrence with each fresh attack of gonococcal infection is not uncommon.

Acute and Sub-Acute Liver Atrophy. James Miller, Can. Pract., February, 1922.

The symptoms of the acute and sub-acute stages may be taken together as they are very much the same, merely differing in their duration. Very often these cases, especially the more acute ones, come under observation only in a moribund condition. Some show a preliminary gastric catarrh. Then jaundice supervenes and becomes more and more intense. Herxheimer has shown that the actual duration of these cases is much longer than is usually allowed as they are ailing for days before the jaundice develops. Headache and vomiting are usually marked features. Trembling of the

muscles, sometimes convulsions and eventually delirium are characteristic. Hæmorrhages may occur into skin and mucous membranes and hæmorrhagic vomiting may be a feature. There may be pyrexia and the pulse is usually rapid. The liver dullness is noted to be progressively diminishing. Bile salts and pigment appear in the urine and uric acid and other purines are often somewhat increased probably due to destruction of nuclear material in the liver. The total elimination of nitrogen is increased but the proportion which appears as urea is diminished, the remainder being excreted as ammonia combined with organic acids. The blood shows decreased coagulability due to the relative absence of fibrinogen which with the globulin is produced in much reduced amounts owing to the destruction of the liver parenchyma. There is increase in the lipase of the blood. Leucine and tyrosin, products of protein digestion, appear free in liver, blood and urine and may be recognized as characteristic crystals in the last. Cellular casts are also usually present in the urine as in most cases of severe jaundice. The stools are usually clay colored.

Acute Infections into the Sebaceous Glands and Hair Follicles of the Nasal Vestibule. Lee M. Hurd, *Med. Record*, January 21, 1922.

ETIOLOGY

The predisposing and exciting causes are the same as those of furuncles elsewhere on the skin, plus bad habits of picking the nose and pulling out the vibrissae, and infection from the nose passing through the vestibule. The staphylococcus is the common organism but it may be streptococcus.

SYMPTOMS

Pain, tenderness, redness and circumscribed swelling in the vestibule, sometimes showing through to the external skin, are the usual symptoms. Later, softening at the centre with rupture and discharge of pus and slough "core" occur, followed by prompt healing. This trivial discomfort may suddenly become extremely serious by extension to the cavernous sinus; this may be due either to attempts at opening, usually with a dirty needle at home or by squeezing and

rupturing nature's barrier, thus driving the infection into the less resistant subcutaneous tissue, or picking the head off the furuncle with a dirty finger nail, or, by too free incision, opening up new avenues outside nature's barrier, or in other cases, it seemed to have traveled the venous channels as a result of what we term lack of resistance to infection.

DIAGNOSIS

A furuncle or collection of them should offer no difficulty; in fact, the patient usually has correctly diagnosed his red, swollen, painful nose as a boil and usually has operated with a needle and squeezed the same, seeking medical aid because it is getting worse under his treatment.

Chronic Nephritis with an Unusual Degree of Nitrogen Retention. Edward Weiss and Vaughn C. Garner, Jour. Labor. and Clin. Med., January, 1922.

A case is presented of severe chronic nephritis in a young man, which ran a short, fatal course. There was no definite etiologic factor and the thought was suggested that there may have been a congenital basis. The case was marked by an unusual degree of nitrogen retention in the various fluids and tissues of the body. The urea was found rather uniformly distributed and approximately equal to that of the blood (304 mg. per 100 c.c.).

It is felt that if urea is not responsible for the uremic symptoms, it at least serves in many cases as a valuable index to the poisonous substance or substances that are responsible.

The Management of Chronic Nephritis. G. E. Tarkington, Jour. Ark. Med. Soc., January, 1922.

PROGNOSIS

Chronic nephritis is an incurable disease; but is not to be considered as incompatible with a fairly comfortable life for many years. The phenol-sulphonephthalein test (kidney functional of Roundtree and Gerrhaty) is of much value in estimating the functional capacity of the kidney, considering 60 per cent elimination in two hours for the dye injected intramuscularly as low normal,

as low as 25 per cent is compatible with fairly comfortable life if care is exercised with reference to the diet, exercise and symptomatic treatment instituted as indicated. The blood chemistry is of value in the prognosis and especially in cases in the male with prostatic hypertrophy and infection, a high creatinin content of the blood is decidedly unfavorable; 5 mg. of creatinin per 100 cc. of blood is a bad omen.

Studies on a Case of Chronic Acid Nephritis. Ralph H. Major, Johns Hopkins Hosp. Bull., February, 1922.

In this case of chronic acid nephritis the kidney lesion present was that of a pure tubular nephritis. No edema was noted clinically and no anasarca or ascites was present at autopsy. No symptoms of uremia were present, and the patient, during the greater part of his illness, felt comparatively well.

The urine output following a temporary depression was high, but the urine itself was of low specific gravity and the excretion of nitrogen, chlorides, phosphate, creatinin, uric acid and urea was markedly diminished. Glycosuria appeared from time to time but it bore no apparent relationship to the amounts of blood sugar present.

A study of the blood chemistry showed very high values for urea, inorganic phosphates, amino acids and creatinin and values higher than normal for uric acid. Determinations of the carbon dioxide content of the blood plasma showed definite evidence of acidosis which responded promptly to alkali therapy.

Headache from the Standpoint of Ophthalmology and Otolaryngology. G. Henry Mundt, Ill. Med. Jour., March, 1922.

Sinus headaches may be caused by one of the following:

Swelling of the mucosa with pressure or irritation of the nerves. (Skillern.)

Closure of the orifice of the sinus with partial absorption of the contained air (vacuum headache).

Absorption of toxins from the sinus.

Blocking of drainage in a pus infection.

Congestion of the mucosa due to infection.

Accessory Pancreas with Ulcer of Pylorus. Harry Cohen, Surg., Gynec. and Obst., March, 1922.

The presence of accessory pancreas is of considerable interest. Frequently associated with this anomaly are many developmental errors. Surgical complications, as obstruction, ulcer, intussusception, diverticula, pancreatitis, etc., are often present. The chemical irritation of the pancreatic juice on the tissues should be considered.

A Case of Periodic Family Paralysis. M. Neustaedter, N. Y. State Jour. Med., February, 1922.

PROGNOSIS

The prognosis *quoad vitam* in uncomplicated cases is good. Deaths during attacks were reported by Schachnowitsch, Holtzapple, Schmidt, in the family of this case and others. The paralysis lasts from a few hours to several days and in one instance (Burr) has lasted seven days. When profuse perspiration and diuresis is present a recovery in a few hours is the rule. The duration of intervals and the complete seizure of attacks cannot be foretold and so far has not been modified by any treatment. Cardiac failure was reported in a few instances. The paralysis of the accessory muscles of respiration have in very few instances led to dyspnoea. Other complications may materially alter the prognosis.

Inadequate Personality with Special Reference to Its Influence on Both Diagnosis and Treatment. Ross Moore. Calif. State Jour. of Med., February, 1922.

CONCLUSIONS

There is such a thing as inadequate personality.

It is congenital and irrecoverable.

It manifests itself in the physical, neural, moral, and emotional parts of human nature.

It gives rise to symptoms which may simulate closely those of organic or functional disease and which may be mistaken for evidence of the latter.

It is usually associated with acquired illness.

When it is so associated all therapeutic effort aimed at relieving symptoms caused by it will end in disaster.

When its presence is recognized and taken into therapeutic consideration much improvement can be brought about in the patient.

Its presence will be determined by careful consideration of the history of the patient rather than by examination.

The history necessary for diagnosis does not relate to previous illnesses sustained, but to the reaction of the patient to his environment and all data capable of giving a true estimate of that intangible thing called personality.

Phenolphthalein Eruptions. Fred Wise and E. W. Abramowitz, Arch. Derm. and Syphil., March, 1922.

In susceptible persons, the ingestion of phenolphthalein provokes a peculiar polychromatic eruption on the skin, with bullous, vesicular and eroded lesions of the mucosae and genitals.

The cutaneous lesions leave pigmented areas which persist for months and even years.

The lesions "flare up" after the ingestion of the drug, usually affecting the same sites as in the preceding eruption.

The pigment in the skin does not react to Perles' ferrocyanid test; the cells in the corium are chromatophores and the pigment melanin.

The eruption exhibits many points of similarity to those resulting from antipyrin and arsphenamin.

"Pericarditic Pseudopneumonia" in Children. Milton Smith Lewis, Med. Record, February 25, 1922.

The signs of apparent consolidation at the left scapular angle are, in all probability, due to the compression of the pulmonary tissue either by the heart or by the pericardium, or by both.

The frequency of these signs and their location at the left scapular angle, indicates that there is some casual relationship to the acute pericarditis.

These pulmonary signs seem to have little influence on the course of the disease, as the signs at the left scapular angle disappear with the improvement of the pericarditis.

An Important Sign in the Diagnosis of Beginning Pulmonary Tuberculosis. W. Foster Dutton, Med. Record, February 4, 1922.

The signs and symptoms first described are not found in more than ten per cent. of the cases of beginning pulmonary tuberculosis. The ninety per cent. of the cases of actual beginning pulmonary tuberculosis are not diagnosed by these signs and symptoms. It is to this class of patients this paper is devoted.

In the years from 1903 to 1913, the writer examined some 20,000 persons. These people represented various walks of life from laborers in the mills to bankers and presidents of large corporations.

A condition not previously observed by the writer was found, from time to time, in the examination of the lungs. It was not a sound described in texts and was for a while puzzling.

After a number of years of close observation of each patient the sound was found to exist in only one condition, *i.e.*, pulmonary tuberculosis. One who has used or heard the sound of a fine wood-plane can appreciate the sound. The sound may often vary in pitch between that of the wood-plane on soft pine and a soft rasping. It may be continuous or alternating through the entire period of inspiration, but is not usually heard on expiration.

The sound is usually heard best in the second or third intercostal spaces anteriorly, on the side affected, between the sternal line and the midclavicular line.

The abrasion of lung tissue or infiltration on the external surface or in the parenchyma of the lung which produces this diagnostic sound does not affect, or cause abnormalities of voice but affects the breath sounds of inspiration.

The normal inspiratory sound is a soft blowing murmur which can be very well imitated by placing the mouth and lips in position to articulate the letter "F" and drawing in gently to the end of inspiration.

Roughened breathing is often audible in infiltrated areas. The interrupted breathing which assumes a jerking or saccadate character (cog-wheel breathing) is looked upon as of importance in apical tuberculosis.

The abnormal inspiratory sound to which reference is made, is imitated by placing the lips and tongue in position as if to articulate

the letter "T." Then make the sound "shlu" by taking a full slow inspiration in an undertone. This inspiratory sound may be continuous or interrupted so as to consist of one, two or three parts. Rarely it may consist of four parts.

Studying clinically the condition of the lungs and of the pleura, immediate auscultation alone is of value in the early diagnosis of the incipient stage of pulmonary tuberculosis. It is true that the methods of inspection, thoracography, spirometry, palpation, mensuration, percussion, X-ray examination, examination of sputum, and exploratory puncture may be of value in leading to a diagnosis or a differential diagnosis, but is valueless in arriving at an exact early diagnosis of beginning tuberculosis.

Immunological Reactions of Bence-Jones Proteins. I. Differences Between Bence-Jones Proteins and Human Serum Proteins. S. Bayne-Jones and D. Wright Wilson, Johns Hopkins Hosp. Bull., February, 1922.

In the possession of a crystalline Bence-Jones protein the writers had at their disposal an ideal substance for immunological studies. By crystallization, it could be freed from possible traces of serum proteins and thus permitted the use of a purified preparation to obviate the confused results which vitiate many immunological experiments. Its quality as an antigen was easily established, and the reactions dependent upon its anti-bodies were unequivocal. In contrast to this, the non-crystalline preparations of Bence-Jones proteins, precipitated from the urine by fractionation with salts or heat, gave the "cross" reactions usually obtained with mixed antigens. Comparisons between the Bence-Jones proteins and the proteins of normal human serum were made by the use of precipitin, complement-fixation and anaphylactic reactions. The precipitin reactions were extended by the method of the absorption of anti-bodies and the anaphylactic reactions were submitted to analysis by the Schultz-Dale method of the graphic record of the contraction of smooth muscle. The results of all these experiments were in accord, and allow the following conclusions to be drawn:

The crystalline Bence-Jones protein acts as a single antigen.

The non-crystalline preparations of Bence-Jones proteins, isolated from the urine by salting-out or other precipitation methods, contain traces of serum proteins.

The Bence-Jones proteins are immunologically different from the proteins of normal human serum.

These differences between proteins from the same animal are further evidence in support of the conception that the specificity of proteins is not dependent upon their biological origin, but due to their chemical constitution.

Atrophic Pyelonephritis. William F. Braasch, Northwest Med., January, 1922.

DIFFERENTIAL DIAGNOSIS

Atrophic pyelonephritis may be most easily confused with (1) reduplication of the renal pelvis, (2) wide stricture of the lower ureter, and (3) chronic renal tuberculosis.

Pelvic Reduplication. It has been demonstrated that the upper pelvis, with reduplication of the renal pelvis, is but about one-half the size of the lower pelvis. On cystoscopic examination it is very easy to overlook the second meatus, and, if the ureter leading to the upper pelvis is catheterized, the resulting pyelogram will demonstrate the outline of the small upper pelvis, which could easily be mistaken for an atrophic kidney.

Stricture of the Ureter. With a wide stricture of the lower ureter there may be resulting atrophy of the kidney, accompanied by a moderate degree of dilatation of the ureter and pelvis. The ureteral catheter may not meet with obstruction, and slight dilatation visible in the pyeloureterogram may be regarded as secondary.

Renal Tuberculosis. Renal tuberculosis of a chronic cicatricial type may have an insidious development, lacking any of the clinical data which are usually observed. The process then has a tendency to encapsulate; it slowly encroaches on the adjacent renal tissue, so that the kidney gradually atrophies and becomes largely cicatricial. The cystoscopic examination usually discloses evidence suggestive

of tuberculosis, although the findings may make it indistinguishable from atrophic pyelonephritis. The demonstration of tuberculosis bacilli in the urine will of course identify the lesion. In one case the clinical course and the gross pathology of the kidney removed were those of atrophic pyelonephritis, and it was only on microscopic examination of the renal tissue that the tuberculosis was discovered.

Bilateral Pyelonephritis. Occasionally a patient is observed with a definite chronic bilateral pyelonephritis, with function of one kidney practically normal and that of the other greatly reduced. As a rule, however, the function of both kidneys is reduced symmetrically and surgical treatment is contraindicated. If chronic infection is found in both kidneys and one kidney has become atrophic, the latter should be removed, providing the function of the other kidney is normal or shows evidence of hypertrophy.

X-ray Study of 500 Medical Cases for Paranasal Sinus Infection. Rex L. Diveley, Jour. Missouri State Med. Assoc., January, 1922.

CONCLUSIONS

That a Roentgen examination of the nasal accessory sinuses should be made in every case of suspected focal infection, which gives a history of frequent colds, chronic colds, nasal discharge, morning headaches, nasal operation, obstruction to breathing, pain over sinuses, crust formations, or shows on examination deformity, deviated septum, or dry mucous membrane.

Many obscure cases can be diagnosed by the X-ray which would not ordinarily be found by clinical examination alone.

Some cases have been found by the X-ray which could not be proved clinically. In a few treatment or operation have given wonderful results.

That approximately 75 per cent. of patients seen in a private consulting practice have had some form of sinus infection.

That approximately 5 per cent. of patients seen in a private consulting practice have an active sinus infection.

A Roentgenographic Study of the Sella Turcica in Normal Children. Murray B. Gordon and A. L. Loomis Bell, N. Y. State Jour. Med., February, 1922.

CONCLUSIONS

Shape of sella turcica.

The sella turcica in children can be classified in a general way by means of roentgenogram into three groups according to shape—A, circular; B, oval and C, flat and saucer shape, with modifications as explained in the text. Group A and B were found in all ages while C was practically limited to the first three years.

Shape of the sella as to size of the head.

The shape of the sella has no significance except in the case of the flat group C type. This type is always found in small heads, but it does not necessarily follow that all small heads exhibit this type.

Size of sella in comparison with age of child.

There is a marked variation for each age, both as to height and length of the sella for that particular age. The average height and length of the sella shows a comparatively rapid increase in the first two years with a gradual yet irregular increase from then on up to the age of 12. There is a tendency for the average height increase to follow the average length increase.

Size of sella as to size of head.

There is apparently no relationship between the size of the head and the size of the sella based on head measurements.

Appearance and size of sella as to sex.

There is no difference in the occurrence of the three groups between the heads of boys and girls. There does not seem to be any influence of sex on either appearance or formation. The sellas of girls, however, were greater in both length and height on the average.

Early Diagnosis of Cancer of the Stomach. Joseph Katz, N. Y. Med. Jour., February 1, 1922.

While there is not any one definite, specific sign, symptom or other means whereby we can make a positive early diagnosis in an

early gastric malignancy, yet considering a number of these findings in a group will help us to diagnose an early gastric cancer in a majority of cases. The following are of importance to be noted: 1, Age, forty or above; 2, sudden onset; 3, history of chronic gastric ulcer; 4, anorexia; 5, loss of weight; 6, loss of strength; 7, anemia; 8, cachexia; 9, palpable tumor, when present most important; 10, pain in gastric region; 11, vomiting and character of vomitus; 12, gastric contents examined at different times for free hydrochloric acid, combined acids, lactic acid, ferments and enzymes, Boas-Oppler bacilli, blood, soluble proteins, and sometimes there is found carcinomatous tissue in advanced cases; 13, fecal examination; 14, blood examinations for anemia, isohemolysins, sugar, Abderhalden reaction, and complement fixation; 15, X-ray; 16, laparotomy.

Benign Tumors of the Stomach. George B. Eusterman and Elmer G. Senty, Surg., Gynec. and Obst., January, 1922.

Benign tumors of the stomach are rare and constitute only 1.3 per cent. of all gastric tumors that have come to operation. The actual proportion of benign new-growths to malignant new-growths or ulcerations is as 1 is to 200.

Myomata and fibromata constitute the largest group, gastric polyposis the most infrequent.

About 50 per cent of benign tumors are found in patients more than 40. There is no characteristic syndrome and gastric chemism ranges from achylia to hyperacidity with hypersecretion. The summation of evidence favors the diagnosis of gastric cancer.

The majority of the tumors are situated in the region of the pylorus, the greater curvature, anterior and posterior walls.

The smaller tumors are practically symptomless unless situated at the orifices or unless multiple.

Common complications are recurring hæmorrhage, which occurred in 37 per cent. and pyloric obstruction which occurred in 25 per cent. Palpable mass, food retention, or 6-hour barium retention is less frequent than in gastric cancer.

Often patients with benign gastric tumors are refused operation because the condition is regarded as malignant and inoperable. The

true nature of the lesion is discovered only when the patients insist on operation.

The Lumbar Spine and Sacroiliac Joints. Myron B. Palmer, Amer. Jour. Roentg., January, 1922.

Anatomical variations or developmental defects are seen in a great number of patients presenting symptoms of lower back pain following injury. These variations are also seen in cases that have no back symptoms.

It is reasonable to consider that anatomical variations in the lower lumbar joints may under stress and varying influences be a factor in the causation of lower back pain.

Arthritis should show a definite picture and should not be confused with anatomical variation of the processes.

A more definite conclusion can be arrived at with the close association of roentgenologist and orthopedist.

Circumcision Prevents Syphilis. Alexander Irvine, Va. Med. Monthly, July, 1921.

Syphilis stands next to tuberculosis as a cause of death. National circumcision would prevent forty thousand deaths each year in the United States, according to the author. Circumcision, through the removal of the foreskin, prevents infections through an abrasion which usually occurs on the foreskin. Upon circumcision, the parts become tough like the skin, and are seldom abraded. The practice of circumcision explains the comparative infrequency of syphilis among the Jews.

Dr. Irvine feels that there would be no need for mercury iodide and salvarsan if the practice of circumcision would become nationwide.

Replying to the above statements, Dr. M. A. Zoeckler, Daulatabad, Malayir, Persia, testifies in a letter to the *Journal* of the American Medical Association that circumcision is not a factor in the prevention of syphilitic infection, since in Persia where it is practiced among the Jews and Mohammedans, syphilis is "frightfully common." The impression derived from ten years of practice of medicine in Persia leads him to believe that syphilis is steadily and rapidly increasing.

A Superior Antigen for Complement-Fixation Tests in Syphilis (A Cholesterolized and Lecithinized Alcoholic Extract of Heart Muscle). John A. Kolmer. Amer. Jour. Syphil., January, 1922.

A new antigen is described prepared of mixtures of dried powdered muscles of several beef or human hearts; the hemolytic and anticomplementary activities are largely removed by primary ether and alcohol extractions, the antigenic principles of these being recovered by precipitation with acetone and returned to a secondary alcoholic extract with 0.2 per cent. cholesterol.

The resulting cholesterolized and lecithinized alcoholic extract of heart is polytropic, keeps well, is very highly antigenic and but slightly hemolytic and anticomplementary; different extracts are uniform in these properties.

A New Complement-Fixation Test for Syphilis Based upon the Results of Studies in the Standardization of Technic. John A. Kolmer, Amer. Jour. of Syphil., January, 1922.

A new complement-fixation test for syphilis is described based upon the results of studies in the standardization of technic.

The new test is believed to have greatly increased the sensitiveness of the complement-fixation reaction in syphilis while possessing practical specificity and yielding no nonspecific reactions.

The new test also aims to fulfil the requirements of technical simplicity, accuracy, and economy and to yield uniform results in different laboratories.

The new test yields an accurate quantitative measure of complement fixation in syphilis of value as a serological guide to treatment; a qualitative test is also described.

Subcutaneous Fibroid Syphilomas of Elbows and Knees. Howard Fox, Arch. Derm. and Syphil., February, 1922.

A rare manifestation of late syphilis is described in the case of a negress, aged 45. Undoubted evidence of syphilis was shown by a circinate group of nodules on one arm and the + + + + Wassermann reaction. On both elbows and knees were extremely hard, painless, subcutaneous nodules which had appeared two years previously and remained unchanged during this time. They had no apparent relation to the bursae. A histologic examination of one

of the lesions showed a dense fibrous gumma. Two other similar cases from the literature are quoted at some length. The similarity of juxta-articular nodules is discussed.

Native Infestation by the Broad Tapeworm, *Diphyllobothrium Latum*. Joseph K. Calvin, Jour. A. M. A., January 14, 1922.

Every tapeworm passed, as well as the ova, should be carefully examined to ascertain whether it is the uncommon *Diphyllobothrium latum*.. Whenever the broad tapeworm is found, the patient or parents should be questioned concerning his place of birth, residence since birth, type of fish eaten and the mode of cooking. As the number of reported cases of native acquired infection with this tapeworm increases, much additional information will be gained concerning the extent and number of the foci in the United States.

The Practical Importance of Thoracoscopy in Surgery of the Chest. H. C. Jacobaeus, Surg., Gynec. and Obst., March, 1922.

CONCLUSIONS

For the diagnosis and localization of pleural and pulmonary tumors it is of great importance to make an X-ray examination before as well as after the induction of pneumothorax. By making an X-ray examination after the induction of pneumothorax valuable information is obtained, which completes the information already obtained by the X-ray examination before the induction of pneumothorax.

Thoroscopic examination gives valuable information in diagnosing and localizing pleural and pulmonary tumors, and verifies the X-ray examination.

Carcinoma in Lateral Aberrant Thyroid Gland. Louis Greensfelder and Ralph Boerne Bettman, Jour. A. M. A., March 18, 1922.

COMMENT

The diagnosis of carcinoma of the thyroid made after investigation of the excised specimen, coupled with the fact that the mass was in no way connected with the thyroid, makes one believe that

the carcinoma must have originated from aberrant thyroid tissue in a lateral position of the neck.

The lessons taught us by this case and out of our reading instigated thereby are:

Lateral aberrant thyroids are more common than supposed.

Because of this fact, unilateral enlargements of the neck, and especially cystic enlargements, should make the surgeon consider, among other possibilities, disease of lateral aberrant thyroid tissue.

Malignancy of lateral aberrant thyroid tissue is extremely rare.

The jugular vein is very likely to be involved and injured during the operation, and should be clamped as a preliminary procedure.

Diagnosis of Toxic Thyroid States by a Serum Fixation Test.

William N. Berkeley, Med. Record, January 20, 1922.

This serum test, while experience of it is so far limited, promises well. It costs no more than a Wassermann, it is easily and quickly done in any serum laboratory, and if the present ratio of positive reactions is maintained, it should, along with other signs, prove to be of distinct value in the diagnosis of one of the most troublesome diseases the internist has to deal with.

Most likely it will finally settle the long discussed and troublesome question whether there does or does not sometimes appear as a clinical entity a true toxic thyroidism in the strict sense of the word; that is to say a thyroid dyscrasia developing without quantitative change in the normal thyroid output.

Tumors of the Breast. Carl E. Black, Ills. Med. Jour., March, 1922.

It is frequently impossible to distinguish clinically between benign and malignant neoplasms of the breast.

The microscope is not an infallible guide in determining malignancy of neoplasms of the breast.

All nodules and indurations in the breast which cannot be positively determined to be benign are potentially cancer and should be removed. In patients under thirty the potentially cancerous neo-

plasm alone may be removed; in women between thirty and forty the breast and fascia should be included in the removal; and in women over forty the breast, fascia, muscles and glands in the axilla, should be removed and the nodule at least examined microscopically.

The Diagnostic Value of Volume Ratio Determinations of Day to Night Urine. Harold W. Jones, Jour. A. M. A., February 18, 1922.

The normal ratio of day to night urine is $1:\frac{1}{4}$ or $1:\frac{1}{3}$, occasionally $1:\frac{1}{2}$.

The ingestion of large amounts of fluid does not materially alter the ratio, or the value of the test.

On a low fluid intake, with a total output of 500 c.c. or less, the volumes are nearly equal, and the ratio is of less significance.

In chronic contracted kidney, the normal ratio is often reversed, *i.e.*, the night urine is greater in amount than that of the day. Frequently, the night and day volumes are nearly equal.

In nephritis, the ingestion of a large amount of fluid does not alter the ratio to any marked degree.

In chronic parenchymatous nephritis, if the output is small, the ratio determination has less value.

On a protein-free diet, with clinical improvement, the normal ratio is re-established in many cases.

The determination of the volume ratio of the night to day urine in the two-hour specific gravity fixation test is a more reliable index than the measurement of the night volume alone. The determination of the ratio is of value in differentiating between nocturnal polyuria and nocturnal frequency.

In normal persons who work at night, the ratio of the work period to the rest period remains unaltered; the work period volume is three or four times that of the rest period.

In patients with chronic nephritis who work at night, the volume of the day or rest period is greater or equal to that of the night or work period.

The alteration in the normal ratio is one of the earliest signs of functional impairment in the kidney.

The Elimination of Arsphenamin and Neo-Arsphenamin in the Urine. Barker Beeson and P. G. Albrecht, Arch. Derm. and Syphil., January, 1922.

CONCLUSIONS

The Abelin test seems to be of real value. This opinion is quite generally shared by those who have employed it.

The slightly modified Abelin test is readily and successfully applied for quantitative results without much difficulty or expense.

The sensitiveness of the test is very great.

It is only positive in the presence of arsphenamin and its derivatives, the quantity being approximately indicated by the color of the ring.

Other chemical substances of the benzene series which may be eliminated did not furnish any positive reactions.

Urine from cases of pneumonia, nephritis, rheumatism and gonorrhea did not furnish any positive reactions with this resorcin reaction.

The elimination of arsphenamin and its derivatives by way of the urinary tract was slower in most cases than in Abelin's series. It was usually complete or nearly so within twenty-four hours after injection. A number of cases tested at later intervals gave, with the exception of those mentioned, uniformly negative findings.

Elimination was especially prolonged in cases of tertiary syphilis and neurosyphilis.

The apparently early elimination of these drugs would seem, in certain cases at least, to warrant a shorter interval between injections, as has been suggested by Pollitzer, Sicard and others.

In cases of apparent nonelimination of the drug evidenced by a persistently negative Abelin reaction one should, as Leredde suggests, make a careful examination of the patient before continuing with the treatment.

Elimination seems to be subject to the influence of a number of factors, among them: (a) the dose injected, (b) the solvent employed, (c) previous treatment especially by arsphenamin or its derivatives, (d) dietary indiscretion soon after treatment, (e) the personal element.

Elimination does not always proceed in a rhythmical manner.

The Occurrence of Urea in Nature. Émil A. Werner, Dublin Jour. Med. Science, January, 1922.

The reciprocal action of animal and plant life in relation to carbonic acid and carbon assimilation is well recognized. From carbon dioxide and water plants build up complex carbohydrates from which animals derive energy in oxidizing them to the two simple substances from which they were formed. Similarly plants absorb ammonia which is oxidized in the presence of carbohydrates to cyanic acid, which is used in the building up of protein matter. Animals, by hydrolytic and oxidation changes, break down proteins to cyanic acid and ammonia, which are excreted as urea, from which plants again derive the necessary material to continue the cycle of changes.

Vertigo: A Symptom for the Consideration of the Otologist, the Neurologist, and the Internist. L. M. Sellers, Jour. Missouri State Med. Assoc., January, 1922.

All cases of true vertigo with associated symptoms are due to lesions of the semicircular canals, or their tracts to or within the central nervous system.

The lesion is in most cases (intra-cranial new growths excepted) secondary to some general systemic affection.

When located within the labyrinth or involving the VIII nerve trunk, all responses from that side are similarly affected; *e.g.*, hearing is diminished; the vertigo, falling, and nystagmus are toward, and the past-pointing away from the affected side in irritative lesions, and vice versa in destructive lesions.

In vestibular lesions, absence of the spontaneous equilibratory symptoms at the time of examination is very likely, as compensation quickly occurs.

The presence of only part of these symptoms is nearly always due to a central lesion as it is only after the break-up of the pathways that such can happen.

